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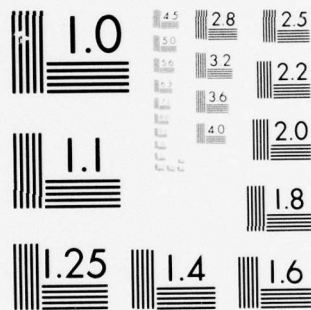
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Lower Mississippi Region Comprehensive Study ①

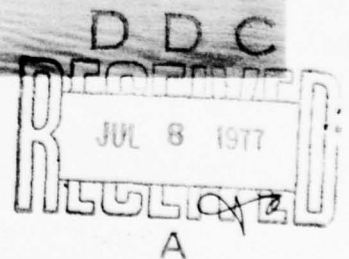


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Appendix N
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This appendix is one of a series of 22 documents comprising the complete Lower Mississippi Region Comprehensive Study. A list of the documents is shown below.

Main Report

Appendixes

<u>Appendix</u>	<u>Description</u>	<u>Appendix</u>	<u>Description</u>
A	History of Study	K	M and I Water Supply
B	Economics	L	Water Quality and Pollution
C	Regional Climatology, Hydrology & Geology	M	Health Aspects
D	Inventory of Facilities	N	Recreation
E	Flood Problems	O	Coastal and Estuarine Resources
F	Land Resources	P	Archeological and Historical Resources
G	Related Mineral Resources	Q	Fish and Wildlife
H	Irrigation	R	Power
I	Agricultural Land Drainage	S	Sediment and Erosion
J	Navigation	T	Plan Formulation
		U	The Environment

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COORDINATING COMMITTEE

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This report was prepared at field level by the Lower Mississippi Region Comprehensive Study Coordinating Committee and is subject to review by interested Federal agencies at the departmental level, by Governors of the affected States, and by the Water Resources Council prior to its transmittal to the President of the United States for his review and ultimate transmittal to the Congress for its consideration.

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INTRODUCTION

PURPOSE AND SCOPE

↙ This appendix outlines the need for recreation facilities and resources within the Lower Mississippi Region and each individual water resource planning area (WRPA) within the region for 1970 and the target years of 1980, 2000, and 2020. Wildlife oriented recreation activities and their requirements are evaluated in the Fish and Wildlife Appendix; and, therefore are not included in this appendix. ↗

The study adopted the specific national objectives presented in "Procedures for Evaluation of Water and Related Land Resource Projects, June 1969," a special task force report to the Water Resources Council. These objectives were: (1) National Income, (2) Regional Development, (3) Environmental Quality, and (4) Social Well-Being. Social well-being was dismissed as an explicit study objective in the fall of 1971, but was adopted as the overriding determinant in the other three objectives.

The National Income Objective (Program A) is achieved through increases in the Nation's output of goods and services. The needs formulated herein for the National Income Objective, Program A, are based on projections contained in Appendix B, Economics.

The program formulated under the Regional Development Objective (Program B) is directed to the satisfaction of needs and the solution of problems accompanying specified conditions of accelerated economic growth within the region. Projections under the Regional Development Objective are consistent with the assumption that the Lower Mississippi Region has sufficient potential to grow at a rate equal to the national average. Basic parameters for Program B are also contained in Appendix B, Economics.

The Environmental Quality Objective (Program C) reflects the human concern for preservation and improvement of our natural surroundings in harmony with the socioeconomic environment. In formulating a plan for this objective, Program A components were included to the extent that they do not materially conflict with nature. Economic parameters were not developed for the Environmental Quality Objective, therefore the needs expressed in this appendix for the National Income Objective are also applicable to the Environmental Quality Objective.

The appendix also investigates and evaluates existing and potential outdoor recreation resources within the region which do now or may in the future provide outdoor recreation opportunities.

- 1 -

RELATION TO OTHER APPENDICES

The Recreation Appendix is one of three appendices prepared within the Recreation and Fish and Wildlife Subcommittee. The other two appendices are Appendix Q, Fish and Wildlife, and Appendix P, Archeological and Historical Resources.

Information provided to this appendix from other study elements includes demographic and economic data from Appendix B, Economics, and land-use data from Appendix F, Land Resources.

Information from the Recreation Appendix utilized in the preparation of other appendices includes a report on the economic impact of outdoor recreation for Appendix B, Economics, and location and description of recreation facilities for Appendix D, Inventory of Facilities.

Data pertaining to costs, alternative measures for satisfying the identified needs and recommendations are not displayed in this appendix but are included in Appendix T, Plan Formulation. The Plan Formulation Appendix displays the recreation program in terms of the three objectives and also in terms of a recommended plan which is an amalgamation of the other three plans.

The Recreation Appendix does not specifically address environmental issues as these are contained in Appendix U, The Environment. Appendix U summarizes the results of coordinated Federal-State efforts to access and quantify resource needs which reflect society's concern with the quality of certain specified components of the "natural physical-biological system" of the study area.

M E T H O D O L O G Y

DEFINITIONS

The "Glossary of Terms" contains most of the needed definitions for all appendices. However, in addition to these definitions, some explanation needs to be made of the different outdoor recreation area classifications used in this appendix. Recreation needs for land are segregated into three area classifications so that user oriented, urban recreation needs can be distinguished from those needs that require a rural, resource oriented setting.

One method of classifying recreation supply is simply to determine the location and type of development of these recreation areas. If this information is not available, then an alternative method must be found. The level of government owning and administering a recreation area will tell much about the location and intended use of an area. Another key factor is whether an area is privately or publicly owned. Ownership and administration were used because this information was available in the State comprehensive outdoor recreation plans, one of the sources of supply data.

This system is not appropriate for classifying water areas in that ownership is determined by State laws. For example, all navigable lakes in this region are the property of the States and nonnavigable lakes are the property of the riparian owner.

This classification system would, however, include the land area associated with water oriented activities such as boating and swimming. Therefore, an estimate of the water needs and their area classification could be deduced from the related land needs for water oriented activities.

The three land classifications into which outdoor recreation areas were segregated are as follows:

- Category A - Recreation areas owned and administered by local governments and by private commercial enterprises.
- Category B - Recreation areas owned and administered by State, county, or township governments or by quasi-public institutions.
- Category C - Recreation areas owned and administered by the Federal Government.

ASSUMPTIONS

Assumptions must be made where there is incomplete or unclear background information upon which to develop needed data. The assumptions herein clarify the meaning of and set a foundation so as to minimize misunderstanding with regard to land area, recreation space standards, activity turnover rates, out-of-basin visitation, and percentage of recreation area in buffering zone.

Land Area

The following assumptions were made regarding the three land area classifications:

- Category A - Recreation areas that are owned and administered by municipal governments and private commercial enterprises are assumed to be user oriented or market oriented areas. These recreation areas would usually be located in or near an urban center or close to an area of heavy vehicular traffic, thus creating a mass "mobile market."
- Category B - Recreation areas that are owned and administered by State, county, or township governments or by quasi-public institutions usually have an intermediate type of development. They may be located in either a rural environment or close to an urban center. A State park or church camp would typify this type of development.
- Category C - Recreation areas that are owned by the Federal Government are usually resource oriented in that the resource rather than people determines their location and plan of development. Facility development standards are usually not as intensive and the undeveloped portion of the area is usually greater.

Recreation Area Buffer Zone

The total land and/or water area having recreation as one of the management purposes is referred to as the recreation resource. A land and/or water area administered as a unit for outdoor recreation is known as a recreation area. This recreation area may include both developed and undeveloped acreages. The key activities of camping, picnicking, swimming, boating, and playing outdoor games and sports need facilities constituting a development base within the recreation area. This

developed acreage is referred to as the recreation site. It is the area wherein most of the recreation activity will occur and will, therefore, contain most of the recreation facilities. The recreation site is assumed to constitute 50 percent of the Category A recreation land, 25 percent of the Category B recreation land, and 10 percent of the Category C recreation land. The buffer zone or undeveloped portion of the recreation area is used for the kinds of activities requiring a less centralized development, such as trails for hiking or horseback riding.

Recreation Space Standards

The following recreation space standards for the activities at a recreation site are considered most appropriate and realistic:

- | | | |
|----------------------------------|---|---|
| Camping | - | 4 people per campsite
5 campsites per acre |
| Picnicking | - | 4 people per picnic table
5 picnic tables per acre |
| Playing outdoor games and sports | - | 20 people per playing field
1 playing field contains 1.5 acres |
| Swimming | - | 150 people need 1 acre of wet beach
1 acre of dry beach and 2 acres of supporting development, or 1/10-acre of swimming pool and 3 acres of supporting development |
| Boating | - | 3 people per boat
1 boat required 1/13-acre of land and 20 acres of water for restricted boating
40 acres of water are required for unrestricted boating (water skiing) |

Turnover Rates

The following turnover rates are considered appropriate for the basic activities mentioned above: Camping - 1, Picnicking - 1.5, Playing outdoor games and sports - 3, Swimming - 3, and Boating - 3.

Out-of-Basin Visitation

Ingress to and egress from the Lower Mississippi Region are assumed to be equal for Program A. However, tourism constitutes 20 percent of the Program B camping demand in 1980, 25 percent in 2000, and 30 percent by 2020. Tourism demand is allocated to other activities on the basis of campers' participation in other outdoor recreation activities as found in the Bureau of Outdoor Recreation's "1965 Survey of Outdoor Recreation Activities."

PROCEDURE FOR CALCULATING RECREATION NEEDS

Participation Rates

Participation rates used were those for the Western North Central, Eastern South Central, and Western South Central census divisions as shown in the Bureau of Outdoor Recreation's "1965 Survey of Outdoor Recreation Activities." These divisions were used because the study area is contained within their boundaries. Participation rates from other participation rate surveys, such as those contained in the State comprehensive outdoor recreation plans, were not used because not all of these surveys used the same research methodology nor were they taken during the same year.

The participation rates for the three census divisions were assigned a weighting factor in proportion to the respective populations represented, and then combined into a single rate representing all divisions. Participation rates for 1970, 1980, 2000, and 2020 were determined by projecting the 1965 rates to these target years.

The 1965 participation rates were updated to the target years using the socioeconomic factor analysis results developed by the Outdoor Recreation Resources Review Commission. This commission, established by Congress to survey present and future recreation needs, resources, policies, and programs, made its report to the Nation in 1962. In Study Report Number 26, the commission identified and calculated the effect that six socioeconomic factors (leisure time, income, education, occupation, age/sex, and place of residence) have on recreation participation.

After projected target year participation rates were calculated, these participation rates were multiplied by present and projected population estimates to arrive at current and projected recreation demand.

To arrive at an estimate of the resources needed to accommodate the demand for recreation, it was necessary to predict the maximum number of people expected to use an area at any one time. The first step in determining this estimate is to calculate the activity days of use occurring on the average peak day during the recreation season or high quarter of recreation activity; the "average summer Sunday" demand. That calculation is as follows:

$$\frac{\text{High quarter visitation}}{\text{number of weeks in high quarter (13)}} \times \text{Percent of weekly demand expected on Sunday (33-1/3\%)}$$

The average summer Sunday demand was then divided by the turnover rate to arrive at the number of people the recreation area would need to accommodate at any one time.

Land and water requirements for recreation were calculated from the "design load" by applying recreation space standards to the design load. These space standards are identical for both Programs A and B.

The estimated land requirements for recreation were allocated to the three land area classifications (Categories A, B, and C) by an empirical examination of the present supply situation with regard to these area classifications. This allocation was compared with an allocation derived on the basis of distance traveled by participants, outlined in the Bureau of Outdoor Recreation's 1965 recreation survey. These two methods of allocating demand to the three land area categories produced generally similar results.

Demand-Supply Balance

A comparison of current recreation facility supply to the demand for these facilities served as a basis for determining the extent of present and future recreation development net needs. The recreation facility and recreation area supply data used were obtained from the State comprehensive outdoor recreation plans. This source of recreation supply information was found to be the most complete source available.

The amount of overuse or underuse of existing facilities was determined by calculating the ideal development of the existing resource. To find this ideally developed recreation site, it was necessary to find the maximum number of activity days that the site would support. This was taken to be the quotient of the total site acreage divided by the sum of the quotients of recreation day composition per activity and maximum activity day use per acre per activity.

The maximum number of activity days the developed area base will support was then multiplied by the percentage composition per activity and then divided by the maximum activity day use per acre per activity. This resulted in an acreage figure per activity which is the standard of development for that particular activity. These development standards were then compared to presently existing development to determine to what extent more intensive development of existing outdoor recreation areas is possible.

The preceding calculations are concerned with the need for recreation facility development in the developed area base or recreation site. The percentage of the total recreation area requirement that this developed facility acreage comprises varies with the area classification and is explained in the Assumptions Section. The peripheral zone or buffering provides an area for those activities other than the key activities; activities such as hiking, nature walks, horseback riding, etc., requiring a less developed, resource oriented area.

Requirements for water surface areas were determined by comparing boating acreage requirements with the present supply of slack water.

Although swimming would also utilize a limited amount of the requirement, that need can be satisfied along the shorelines and thus not make any appreciable difference in total acreage requirements.

The preceding calculations for determining outdoor recreation area needs were made along two separate "tracks" using population parameters developed for Programs A and B. In addition, all of the foregoing calculations with regard to recreation supply and area classification have been made keeping WRPA's 4 and 5 separate from the other WRPA's. Water Resource Planning Areas 4 and 5 are extremely atypical in that there are four large Corps of Engineers reservoirs within WRPA 4 and three Corps of Engineers and two Arkansas Power and Light reservoirs in WRPA 5.

The land and water areas designated as outdoor recreation areas will satisfy the physical requirements for most of the recreation activities. However, the two very popular recreation activities of driving for pleasure and sightseeing would, in most instances, take place outside of the outdoor recreation area. Although they would not require a recreation area per se, and no needs as such were developed for these activities, they would require what might be called recreation supply in that aesthetic considerations are important to the enjoyment of the experience.

REGIONAL SUMMARY

DESCRIPTION OF THE REGION

The Lower Mississippi Region study area encompasses portions of seven States. The 102,404 square miles in the region contains about 35,000 square miles of Mississippi River Delta or alluvial plain with the remainder of the land varying from gently rolling hills to the mountainous Upper Ouachita Basin. Average annual precipitation ranges from 65 inches in the southernmost portion of the region (gulf coastal area) to 44 inches in the northernmost portion of the region. The average annual temperature ranges from 70° F. along the gulf coast to 60° F. in the northern portion of the region with a January range of 55° F. to 40° F. and a July range of 78° F. to 82° F. The mean length of the freeze-free period ranges from 300 days along the gulf coast to 210 days in the northern portion of the region. This mild climate is conducive to a long recreation season and accentuates the need for outdoor recreation facilities.

The southern portion of the region experiences flooding and wind damage from hurricanes and other tropical storms that come inland from the Gulf of Mexico; however, these storms create little or no problem for existing recreation developments. Construction of new facilities is difficult in this portion of the study area for two reasons. First, the limitations imposed by soil characteristics makes construction of almost any type of facility very difficult and therefore expensive due to the requirements for extensive site preparation. The other reason is the scarcity and, therefore, expense of land to build on. For example, the coastal marsh areas (approximately 4 million acres) is almost devoid of development due to the instability and fineness of the soils. Land values are much higher in the southern portion of the region than in the northern portion.

Demographic and Socioeconomic Analysis

The demand for outdoor recreation obviously originates with people; therefore, by examining the demographic and socioeconomic characteristics of the region we can gain much insight into the characteristics of demand.

Population

An examination of demographic and socioeconomic data prepared for this study and included in Appendix B, Economics, indicates that, although the Lower Mississippi Region experienced a 14 percent growth rate from 1950 to 1968, all WRPA's have not shared equally in that growth.

Figure 1 illustrates the relative population densities between the WRPA's at present and projected for the year 2020. The WRPA's with large urban areas within their boundary, WRPA 3 (Memphis), WRPA 8 (Baton Rouge), and WRPA 10 (New Orleans), have experienced and will continue to experience the greatest population increases.

At present, approximately 60 percent of the population in the region lives in urban areas. By 2020, this urban percentage is expected to rise to 76 percent. The vast majority of this urban population and approximately 50 percent of the total population will congregate in the cities of Memphis, New Orleans, and Baton Rouge.

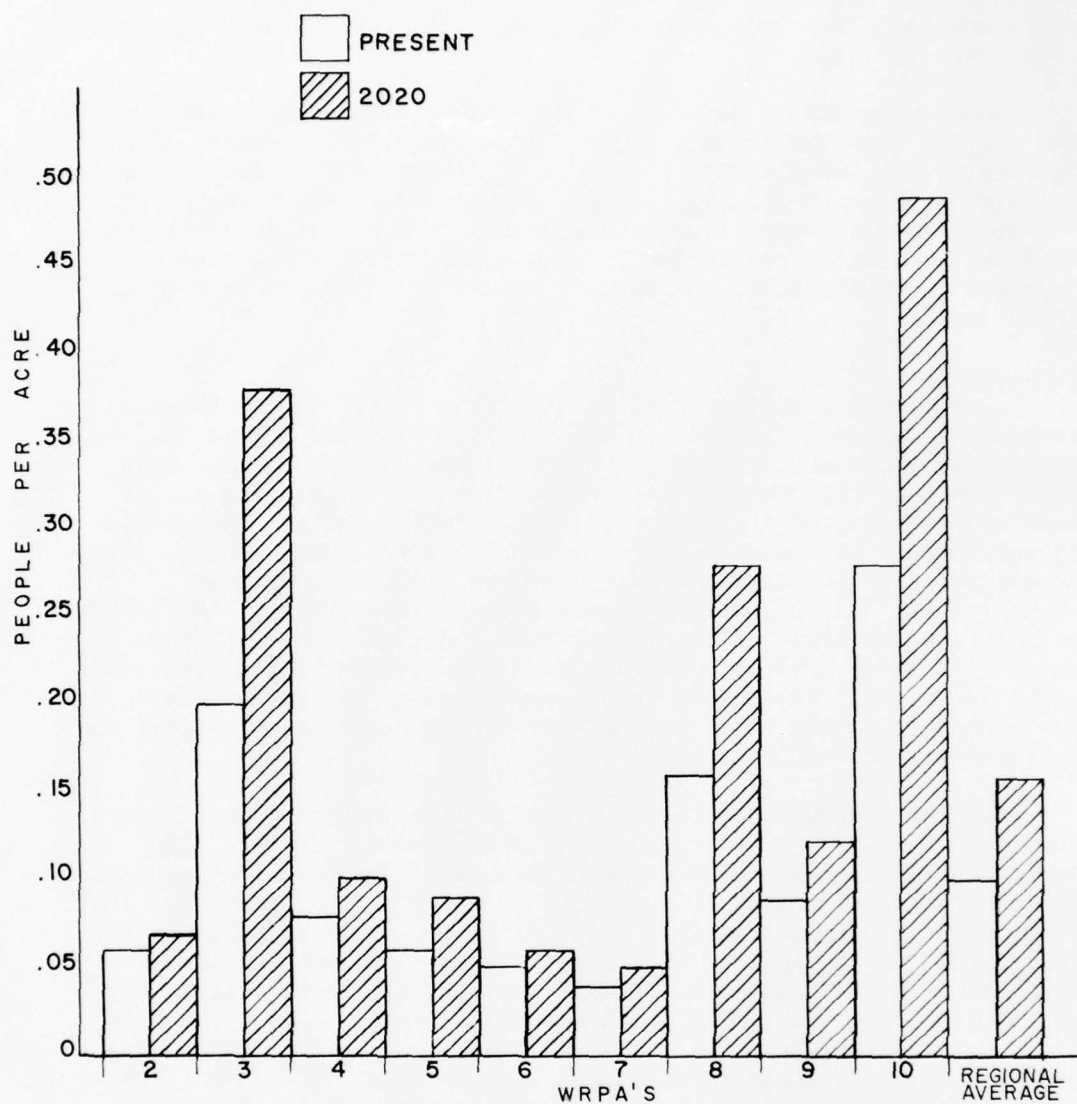
This fundamental shift is in response to concurrent but opposite forces: (1) the positive pull of the city resulting from the premium that our society places on nodal location and the economics of scale associated with central-place; and (2) the negative pull, or push, resulting from the declining employment needs of primary production such as agriculture that has been the base of rural small towns.

The shift of population away from rural parts of the basin into the relatively few metropolitan centers presents us with two major socioeconomic problems; how to cope with the needs of people jammed into the ever-growing metropolitan centers, and how to redress the declining economic opportunity in major segments of the rural areas of the basin. Like the rest of the world, the Lower Mississippi Region has its problems with "overdeveloped" and "underdeveloped" areas.

In general, the urban and rural problems are usually seen as distinct and separate. In recreation, however, the urban-rural problems appear as complementary. Urbanization with its attendant growth in leisure time and disposable income is increasing the demand for outdoor recreation beyond the ability of urban areas to provide for the needs. Various studies and reports have shown that in most cases, urban areas have neither the natural resources nor financial resources to meet the needs of residents. These projections have important ramifications with regard to outdoor recreation in that there will be a tremendous increase in urban recreation needs and also an increase in rural recreation needs as the urban dweller returns to the rural area as tourist and recreationer for the day, overnight, and longer vacation. Recreation demand by urbanites seems to offer a major economic opportunity for revitalization of the rural areas of the region.

Per Capita Income

Of the six socioeconomic factors identified by the Outdoor Recreation Resources Review Commission in Study Report Number 26 as having



LOWER MISSISSIPPI REGION
COMPREHENSIVE STUDY

POPULATION DENSITIES OF INDIVIDUAL WRPA'S
PRESENT AND PROJECTED (2020)

FIGURE 1

a significant effect on recreation participation, changes in income was found to be the second most significant factor in influencing recreation demand.

An examination of personal income growth within the basin from the year 1950 to the present shows a steady regional increase with much disparity among WRPA's (Appendix B, Economics). There is a close correlation between urbanization and income; in fact, urbanization has become almost synonymous with economic growth. It seems evident that the greatest pressure for increased recreation facilities is expected in WRPA's 3, 8, and 10 as a result of increases in both of these factors.

Employment

Type of employment is also an important factor in determining recreation demand. This region has experienced a decline in agricultural employment and an increase in the importance of manufacturing as a source of employment. This shift indicates a changing way of life and standard of living for the region's residents. The decline of agriculture as a way of life for the basin residents can, in part, be explained by the decrease in the number of farms caused by mechanization and followed by consolidation. For example, the number of farms in the basin has decreased from about 432,000 in 1949 to about 143,000 at present; whereas, farm size has increased threefold since 1949. This change has been accompanied by an increase in absentee ownership. Only about one-half of the farms in the basin are now operated by their full owners.

Another indication of how the way of life in the basin is changing is the industrialization specialization index. In 1950, the agricultural index was 12.6 compared with an index of 6.6 at present and a projected index of 1.39 for 2020. An index of 1 indicates that this region would have an industrial distribution of earnings identical to that of the Nation. The agricultural index for the Lower Mississippi Region therefore reveals that the degree of overall specialization is declining quite dramatically.

The change from an agricultural economy to an industrial economy will increase the leisure time available to many of the region's residents. The industrial working day is 8 hours long, whereas, as many farmers will attest, the agricultural working day is usually much longer. This has important ramifications with regard to recreation demand in that the Outdoor Recreation Resources Review Commission found that increases in leisure time has the most positive influence of any of the socioeconomic factors affecting demand.

The preceding discussion of the effect of socioeconomic factors on recreation demand indicates that insofar as these factors are associated with urbanization, and it is quite evident that they are,

they will continue to be a very positive force in increased recreation demand. As the cities within the region continue to grow, recreation demand will also grow, but at a rate in excess of absolute population growth.

RESOURCE AVAILABILITY

National Trends

The following trend analysis was made utilizing the results of four programs of regression and correlation analysis run on the computer facilities at Georgia State University. Two of the programs can be used for multiple regression and two only with bivariate data. Projections were made for recreation expenditures and recreation employment at the Federal, State, and local level.

Time series information was available from 1957-1969 for employment and expenditure levels. Projections were made by determining the relationship between the above items (dependent variables) and something for which projections have already been made (independent variables). Series C, OBERS, projections for population, gross national product, and other independent variables were utilized in the analysis. Estimating the future value of the recreation data is accomplished by using the computer programs to fit a regression curve of recreation data on the socioeconomic data from OBERS. The trend line or curve can then be used for forecasting the recreation variables.

Forecasting Financial and Human Resources Allocated to Recreation

The following analysis is used to predict Federal, State, and local government expenditures for recreation and for predicting employment in recreation at the Federal, State, and local level.

Multiple regression programs were used to analyze the predictive potential of different variables; i.e., population, employment, hours worked, gross national product, personal income, and earnings. The problem of multicollinearity (correlation of the independent variables between themselves) and the success of using only gross national product in forecasting recreation expenditures and population in forecasting recreation employment resulted in using only gross national product and population as the independent variables.

All expenditure figures are in terms of constant 1958 dollars. Historic recreation expenditure figures were adjusted to 1958 dollar equivalents by using the implicit price deflators for gross national product in the "Economic Report of the President" for 1972. The

implicit price deflators are given for Federal and for State and local government expenditures.

The regression equations for forecasting expenditures for and employment in recreation are displayed in tables 1 and 2, respectively.

The relationships explained by the regression equations in tables 1 and 2 are illustrated graphically in figures 2 and 3.

The projected dominance of local government in supplying recreation resources coincides with the current political emphasis on local initiative and responsibility.

Table 1 - Regression Equations for Forecasting Recreation Expenditures

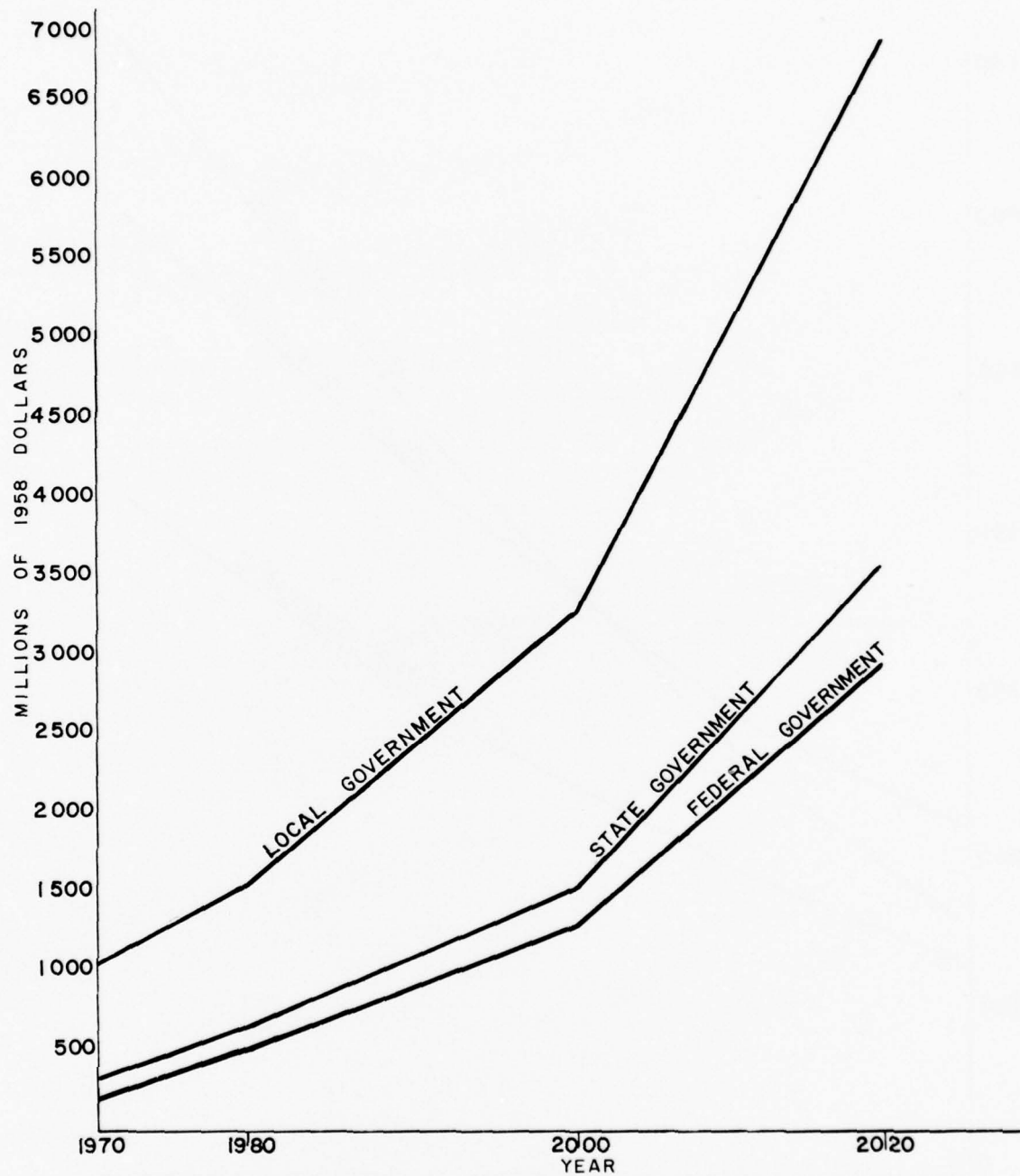
Level of Government	Regression Equation	R^2
Federal	Recreation Expenditures = $-137 + 0.05713 \text{ (GNP)}$	0.91
State	Recreation Expenditures = $-158 + 0.06933 \text{ (GNP)}$	0.98
Local	Recreation Expenditures = $-109 + 0.12687 \text{ (GNP)}$	0.95

Table 2 - Regression Equations for Forecasting Recreation Employment

Level of Government	Regression Equation	R^2
Federal	Recreation Employment = $-150 + 0.00185 \text{ (population)}$	0.90
State	Recreation Employment = $-156 + 0.00146 \text{ (population)}$	0.96
Local	Recreation Employment = $-431 + 0.00289 \text{ (population)}$	0.92

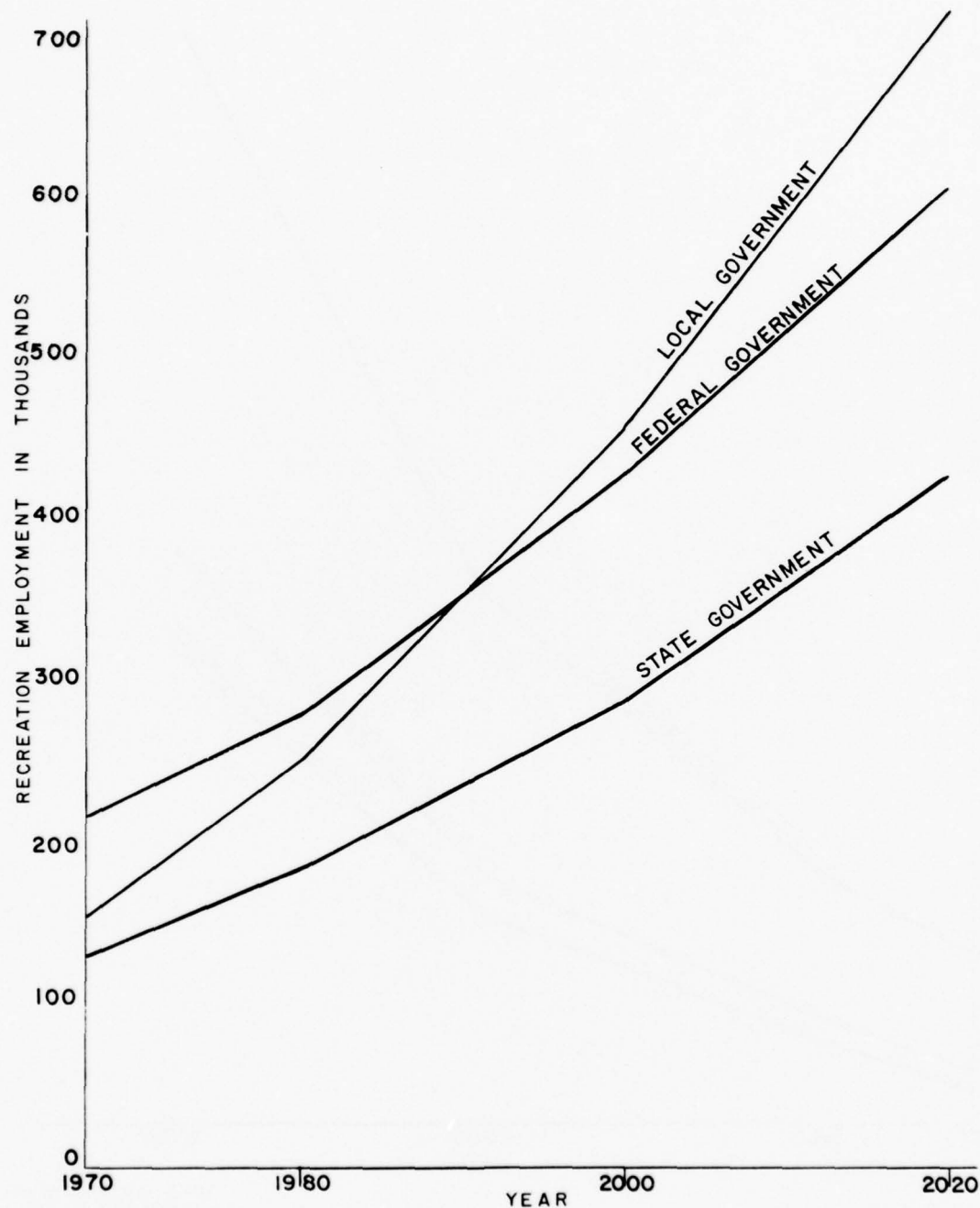
The coefficient of determination (R^2) indicates that from 90 percent to 98 percent of the variations in recreation expenditures and employment can be explained by the regression equations.

The F test and T test are tests of significance for the entire equation and for the dependent variable, respectively.



LOWER MISSISSIPPI REGION
COMPREHENSIVE STUDY

PROJECTED EXPENDITURES FOR RECREATION SERVICES



LOWER MISSISSIPPI REGION
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PROJECTED EMPLOYMENT IN RECREATION SERVICES

The F test statistic indicated that the regression equations are all significant at the 0.001 level. This means that there is less than 1 chance in 1,000 that they are not valid predictors of recreation financing and employment.

The T test statistic indicated that gross national product and population are significant predictors (at 0.0005 level) of recreation expenditures and employment, respectively. In other words, there is less than 1 chance in 2,000 that gross national product and population are not significant predictors of recreation expenditures and employment.

Water and Related Land Resource Profile

The total water and related land resource picture is important to recreation for three reasons. Each of these reasons has the same general theme throughout; recreation value is dependent on diversity and uniqueness. Senate Document 97, Supplement Number 1 "Evaluation Standards for Primary Outdoor Recreation Benefits" regards uniqueness, diversity, and the general environmental setting of the recreation area as the basic criteria, along with the quality of the recreation area development, in assigning increased benefits to the recreation experience.

Diversity and uniqueness are essential factors in creating a sense of interest and excitement which is basic to the recreation experience and our total emotional makeup. So basic, in fact, that many psychologists believe that excitement, along with security, are the sum total of our emotional needs in infancy.

The primary or first reason that the total environment is important to recreation is that future recreation areas will require a portion of this resource. Although the absolute acreage requirements for these recreation areas may not be very large, it is desirable that they be located in an area of resource diversity.

Secondly, the very popular recreation activities of driving for pleasure and sightseeing will primarily occur outside of the recreation area. The enjoyment derived from these activities is dependent on the aesthetic qualities the recreationists derives from the environment.

Thirdly, the Regional Development Objective, Program B, assumes that the Lower Mississippi Region will attract out-of-basin visitation, and it is unlikely that these people from other regions would bypass recreation areas closer to their home to come to the Lower Mississippi Region for recreation unless there was something unique about the recreation areas. In that recreation facilities are seldom

unique to one region, the land and water resources of the recreation area must then be regarded as the "drawing card" for out-of-basin visitation.

Water

The Lower Mississippi Region contains approximately 89,400 miles of rivers and streams and 3.1 million acres of water, of which 2.2 million acres are in water bodies with a surface area of 40 acres or greater. An inventory of lakes and stream mileage is presented in table 3. As might be expected, the vast majority of the flat water is located in the coastal WRPA's (WRPA's 9 and 10).

Table 3 - Water Resource Supply

WRPA	Lakes, Reservoirs, and Large Rivers (acres) ^{1/}	S T R E A M S			
		Stream Mileage ^{2/}	Mileage of ^{3/} Stream Channelization	Mileage with Recreation Potential	Mileage Presently in Satisfactory Condition for Recreation
1	368,301	-	-	-	-
2	91,214	11,042	944	4,234	1,203
3	40,340	4,985	1,037	1,556	822
4	73,676	5,403	3,452	1,100	1,100
5	174,783	14,895	436	3,056	1,931
6	32,262	5,629	2,036	1,015	536
7	38,562	1,071	526	1,028	450
8	73,080	4,862	226	1,456	400
9	399,529	9,775	1,811	989	928
10	938,946	8,373	72	430	329
Total	2,230,693	66,035	10,540	14,864	7,699

^{1/} Includes rivers 1/8 mile or more in width.

^{2/} Includes mileage less than 1/8 mile in width.

^{3/} Does not include channel improvement for navigation.

Although all WRPA's have substantial acreages of lakes and reservoirs, the supply of streams having value as a recreation resource is relatively small. These streams are an important recreation resource but are diminishing at a rapid rate due to encroachment and degradation by human activity.

Out of the estimated total of 89,400 miles of rivers and streams in the region, approximately 74,536 miles or 83 percent are deemed unsuitable for recreation due to reasons of size, flow characteristics, pollution, or alterations for flood control and other purposes. Of the 14,864 miles that are considered to have possibilities of recreation use, only about 7,699 miles (9 percent of total miles) are considered presently suitable as a recreation area amenity, and even this limited mileage is not really available to recreationists because only a small percentage of it is located on publicly owned land. The category of "Mileage With Recreation Potential" in table 3 includes that mileage which could be improved with a reasonable amount of effort so as to be of value as a recreation resource within the time frame of this study in addition to that which is presently acceptable.

There is certainly no assurance that the present stream mileage of value to recreationists will remain intact. Of the seven States included in the study area, only two have enacted scenic rivers legislation and this only protects a very small percentage of the recreation stream mileage in the region.

As stated previously, streams can be, and in many cases already are, a very important amenity for almost all recreation activities.



The Ouachita River ambles over rocks and extended tree limbs to form a nearly perfect picture of natural beauty.



The White River near Clarendon, Arkansas.



Recreation area in Ouachita National Forest.

Public use of the region's rivers in two different settings--one near an urban area, and the other resource oriented.

The presence of a stream through a recreation area greatly enhances the enjoyment of many activities. Therefore any advance in scenic rivers protection is a very significant step in increasing recreation resource availability.

The unaltered streams are also of extremely high value to the Regional Development Program by virtue of the fact that these slow, meandering, highly productive streams are unique to this area of the country and, therefore, a factor in out-of-basin visitation. This is particularly true in the southern portion of the region where the bayous have an aura of romance and mystery, having been romanticized in song and story.

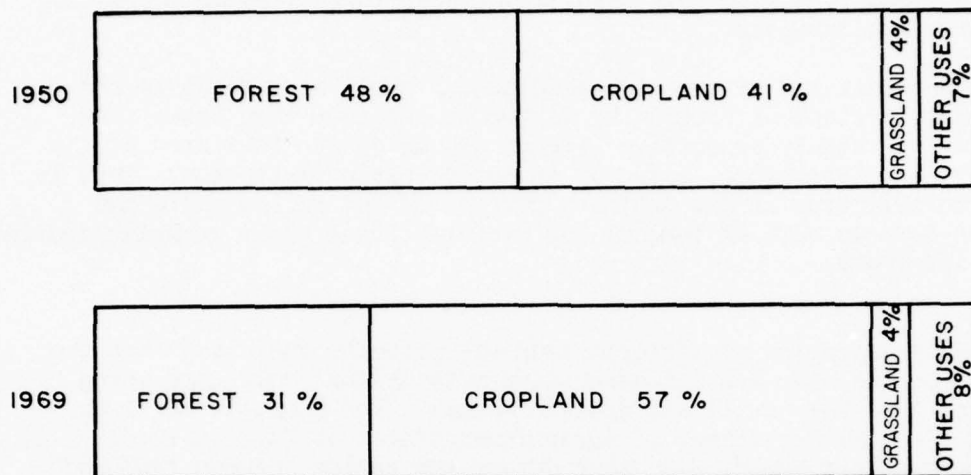
Land

An examination of historic land-use patterns indicates that the land resource base and its associated recreational value are being altered in a very swift and drastic manner. The Economic Research Service of the Department of Agriculture states in "Agricultural Economic Report Number 215" that during the period between 1950 and 1969, there was a significant decrease in forested acreage (35 percent) and a corresponding increase in cropland (38 percent) and urban land (22 percent) within the southern Mississippi River alluvial valley. Figure 4 illustrates these changes.

Other studies indicate the same situation for other specific portions of the Lower Mississippi Region. A report entitled "Disappearing Wetlands in Eastern Arkansas" by Trusten Holder shows that in the delta region of Arkansas, forest land has decreased from 3.7 million acres in 1950 to 1.8 million acres in 1970. Another report entitled "Our Vanishing Delta Hardwoods" by Richard Yancey states that hardwood acreage in Louisiana has decreased from 3.3 million acres in 1961 to 2.5 million acres in 1968--a 24 percent decrease in a span of 7 years.

There is reason to believe that these trends will continue into the future and that within the time frame of this study many components of recreation supply could be virtually eliminated from the major portion of the Lower Mississippi Region. These trends could be slowed through measures such as the Water Bank Act (Public Law 91-559), but they are not being widely used for various reasons. The Water Bank Act is designed to provide financial incentives to landowners for leaving their wetlands in a natural state. However, it has not been effective in the study area because of funding constraints.

A bill was introduced by Representative Jerome R. Waldie of California on July 30, 1973, to establish a national flood plains policy and to encourage the dedication of the Nation's flood plains as natural floodways. Actions such as this would do much to reverse the trend of decreasing recreation supply. The proposed bill would



LOWER MISSISSIPPI REGION
COMPREHENSIVE STUDY

LAND USE CHANGES,
SOUTHERN MISSISSIPPI RIVER ALLUVIAL VALLEY,
1950 - 1969

FIGURE 4



NASA photograph showing land clearing in the Mississippi River alluvial valley: the light areas represent cleared land.



Relaxing in a stand of
bald cypress.



Live oaks along a sidewalk.

Just being in a stand of trees can be a recreative experience.

recognize the value of flood plain areas, among which are their use as open space and recreation areas. The bill would direct Federal agencies constructing, sanctioning, or assisting the construction of water and land development work which affects flood plains to give priority consideration to their preservation. It would also authorize such agencies to acquire, support, and encourage the acquisition of estates in flood plains at Federal cost with administration optionally vested in the States. The bill would require perpetual use of such acquired lands for such purposes as are compatible with the intent of the bill, including fish and wildlife habitat, outdoor recreation, timber production, natural area preservation, and the like, as well as established appropriate economic uses.

The bottom land hardwood forests and especially the tupelo gum-cypress forest types are especially valuable in that they are unique to this section of the United States and, therefore, important in attracting the out-of-basin visitation projected in the regional development program.

Recreation Resources of National Significance

There are several areas within the region that are of national significance. Only two of these areas will be mentioned here; the batture lands and the Atchafalaya Basin. A discussion of the other areas of significance will be reserved for their appropriate WRPA section.

The diversity and uniqueness of these areas would, for reasons explained previously, make them excellent resources within which to develop Category B and Category C recreation areas.

The Batture Lands

The Mississippi River and the batture lands (land between the levees) are themselves a separate WRPA (WRPA 1). This area is one of the best known and most significant areas in the world. Everyone in the United States and virtually everyone in the Western Hemisphere is familiar with the "father of waters." There have been numerous stories, songs, and movies romanticizing "old man river" and its fascinating history.

The recreational use of the batture lands is, at present, primarily for passive, resource oriented recreation. The oxbow lakes on the batture land provide many days of recreation use, although there are few facilities on their banks. The levees themselves are also very significant recreation resources in that in many cases, especially in the lower part of the region, they are the major land relief feature of the area. Land relief is important to the

recreation experience because it offers diversity. A few feet difference in elevation may not seem to offer much as far as recreation is concerned, but in this area of exceptionally low relief one can see almost as far and get somewhat the same feeling on top of a levee as can a mountaineer in another region.

Many things could affect the future resource availability of WRPA 1. For example, land clearing in the batture lands could continue, severely reducing the aesthetic value of the area.

On the other hand, there are several courses of action which could transpire within the time frame of this study which would enhance the recreational value of WRPA 1. It has been proposed by United States Representative Alexander (D-Arkansas) that the area along the Mississippi River from St. Louis to New Orleans be proclaimed a national park and multipurpose recreation area. Representative Alexander said he was making this proposal not only to protect and preserve a magnificent resource but also to stimulate the economy of the area.

Another proposal that could have far-reaching effects on the recreational utility of the batture lands and benefit the entire region advocates building a national parkway along the river. The Mississippi River Parkway Commission was organized in 1938 and has been active ever since. The commission consists of 100 men appointed by the governors of the 10 river States. They, along with the Bureau of Public Roads and the National Park Service, have proposed many interesting ideas in feasibility studies of the parkway. The proposals have varied from the elaborate plan of a parkway on both sides of the river with interpretative centers and recreation areas interspersed to a rather simple upgrading of the existing "Great River Road." The proposal for a parkway has included such interesting features as placing the road on top of the levees. A road such as this would be a very significant increment in increasing facilities for sightseeing and driving for pleasure. The addition of parks and interpretative centers along the parkway would further provide recreationists, primarily the vacationer, with many interesting and educational hours.

Redevelopment of waterfront areas of towns and cities along the river could be a very beneficial byproduct of a parkway. These riverside areas would be excellent for all forms of recreation activities. The parkway would also stimulate tourism and aid market to farm trade.

The Mississippi River Parkway Commission recognized that regardless of the scope of the parkway proposal, they would have to take steps to preserve the scenic qualities of the land along the river and the parkway. At their October 1969 meeting in Baton Rouge, the commission adopted a resolution that scenic easements be acquired along the route of the Great River Road.

More recently, section 12 9(b) of the Federal-Aid Highway Act of 1973 provides for development of the Great River Road as a scenic and recreational highway. The Secretary of Transportation is charged with the responsibility of establishing criteria for the location and construction or reconstruction of the road. As stated in the Act, "construction" includes, among other things, acquiring easements for scenic purposes and the construction of scenic viewing areas and roadside rest and recreation facilities. The implementation of the aforementioned will certainly provide a substantial increase in recreation opportunities and do much to bring about a realization of the regional development goals.

The Atchafalaya Basin

The Atchafalaya Basin, located in South Central Louisiana, extends from the vicinity of Simmesport, Louisiana, in a southerly direction to the Gulf of Mexico. This area is nationally significant as a recreation area because of its very unique environment. It is unlike any other swamp area in North America because of its watering and dewatering features.

Man has had an increasing influence in shaping the basin ever since the 1927 flood. Flooding in that year resulted in measures to use the Atchafalaya Basin as a dispersal system for Mississippi high water. Hence, the basin, now bounded on the east and west by protection levees, serves as an 838,000-acre floodway.

Of the 838,000 acres, approximately 132,000 acres are owned by the State of Louisiana and the rest is private land. Most of the private land is not available for public use; however, the Federal government has obtained flowage easements providing public use of certain lands for the control of floods from the Mississippi River and its tributaries, and there is public access to the State lands which consist mainly of water bottoms.

Present recreation use was recently surveyed by the Louisiana Wildlife and Fisheries Commission and the U.S. Army Corps of Engineers. Their 3-year study was completed in June 1974 and their final report will be published in 1975. The first year (July 1, 1971, to June 30, 1972) of the study is covered in an interim report entitled "Atchafalaya Basin Usage Study."

The first year findings indicated that an estimated 831,000 recreation trips involving 10,873,000 man-hours were made on the area. The percentage composition of the most popular recreation activities tabulated in the survey were: camping (63.2 percent), fishing (25.2 percent), hunting (8.1 percent), boating (3.0 percent), swimming (2.0 percent), driving for pleasure (1.8 percent), and water skiing (1.5 percent). The amount of usage worked out to about 1.4 trips or

18.4 hours per acre (13.1 hours per trip) within the 590,000-acre study area.

There are many factors that can, and will, have a significant effect on basin recreation opportunity. Adverse effects result primarily from siltation, drainage, and land clearing, in that they alter the natural ecology of the area and therefore its uniqueness. Accretion and aggradation have replaced much of the open water in the basin with a series of willow covered islands. Although this is primarily a natural phenomenon, many contend that it has definitely increased within the past few years due to man's activity. Drainage is another activity, strictly man caused, that has had and could continue to have a profound adverse effect on basin recreation opportunities. Over 600,000 acres in the Upper Atchafalaya Basin have already been converted to agricultural use, and the Soil Conservation Service has listed the rest of the Atchafalaya Basin as feasible for drainage projects. The continued natural growth of water hyacinths in waterways would also have an adverse effect on recreation opportunity by retarding boating.

There are other proposed courses of action that could have a very positive affect on recreation opportunities in the Atchafalaya. The Governor's Commission on the Atchafalaya Basin has completed a study on the Atchafalaya and presented its report to the Governor and the Louisiana Legislature. The commission recommended the immediate establishment of all possible facilities for outdoor recreation in the basin. The commission further proposed that an interpretative center be constructed along the recently completed Interstate Highway 10 connecting Baton Rouge and Lafayette. The interstate will bring millions of tourists and residents through the northern part of the basin. The interpretative center, as envisioned, would provide interesting information to visitors and display the wonders of the area via a boardwalk through portions of the swamp. In addition to the interesting displays of the ecology of the basin, there would be a specific wildlife display area, shops for displaying arts and crafts, a museum, boat rentals, a theatre housed on a boat for live and film renditions of the Evangeline story and other stories depicting the cultural heritage and other supporting facilities.

Also included in the proposed recreation development program for the area are hiking trails, boat routes, campsites, and picnic areas. Complementary activities and facilities as outlined here are a major factor in attracting out-of-basin visitation in that they provide a focal point for diversified recreation for the entire family.

Perhaps an examination of costs and revenue will give some insight into the magnitude of the proposals. Costs for the program are estimated to be approximately \$17 million for the initial phase of work. The commission estimates that about \$46 million per year



One of the many bayous and waterways in the Lower Atchafalaya Basin.

(\$32 million from out-of-State visitors and \$14 million from in-State residents) in new expenditures would be injected into the State. After allowances for the multiplier effect, they estimate an increase of \$7.5 million in State and local tax revenue for the first year.

The implementation of these proposals or the implementation of similar type alternative proposals could certainly have a very significant effect on recreation opportunities in this area. The proposals would not reduce the floodflow carrying capacity of the Atchafalaya Basin Floodway.

Recreation Area and Facility Supply

Acquisition Methods

Although most recreation areas in the basin are owned by the governing authority (Federal, State, or local), ownership or having fee simple title to the land is only one method of providing an opportunity for public recreational use of the area. Various acquisition plans and their advantages and disadvantages are outlined below:

Purchase - fee simple title. Advantages of this plan include complete freedom to plan for optimum recreational and multipurpose use, easy resolution of possible conflicts with future commercial development, greater opportunity to secure and use public funds for development projects, and simplicity of administration.

Disadvantages of public fee title purchase include amount of capital required, landowner's resistance, reduction in tax rolls, and similar problems.

Sellback or leaseback. This approach is a variation of the purchase plan. Under such a plan, the land is purchased in fee simple and is sold or leased back to the original owner or other private party with certain restrictions concerning either the retained use or the soldback or leased use. For example, the public agency could retain use for public hunting, fishing, and camping, and sell back or lease other specific uses.

Lease. The landowner, under this plan, would lease to a governing authority his land for certain public purposes. Owner retains all other rights.

Scenic easement or recreational easement. Under this plan, a governing authority purchases from the landowner certain surface rights to the land including certain restrictions on the owner's use of land which would conflict with the use of the governing authority who purchased the rights.

Conservation (or recreation) trust. Landowners can form a nonprofit trust and donate, or sell, their land to this trust. Certain rights can be retained under specific conditions, or can be transferred to the trust. Several variations of this plan are possible depending upon the tax advantages sought. The property owners organize the trust, elect the directors, and set the policy. The trust then can negotiate with a public body for the recreational use of the land under whatever terms and restrictions desired.

Joint venture for recreational use (landowner - public body). Landowners, acting through a trust or individually, and a public body can form a joint venture organization for the purpose of planning, financing, and developing land for public recreational use. The joint venture can be nonprofit or profit.

Private development. Landowners can act individually or can form a trust, a corporation, or a joint venture and undertake to provide recreation facilities and opportunities without governmental involvement.

Role of the Private Sector

The private sector supplies a very significant amount of recreation facilities, especially of those most accessible to large populations. Table 4 illustrates the percentage of user oriented facility and total facility acreage that the private sector supplies.

The private sector supplies approximately one-half of the boat ramps and camping facilities in the region. The boat ramps are probably provided in connection with a small fishing supplies shop. The camping facilities are supplied by the franchise campgrounds such as KOA, Safari, etc., and by the small independents.

Table 4 - Percentage of Recreation Facility Development
Supplied by the Private Sector

Type of Facility	A R E A	
	Category A User Oriented Development	Categories A, B, & C Total Development
Camping	91%	49%
Picnicking	40%	21%
Games and Sports Areas	4%	2%
Boating	80%	52%
Swimming Pool	6%	5%
Swimming Beach	7%	7%



The office and "checking in" point for a private campground.
A list of services and facilities available to the camper
hangs over the front door.

Supply Summary

The amount of land and water available to be used for outdoor recreation and the amount of land already occupied by developed facilities are outlined in table 5.

As defined in the Glossary of Terms, a recreation resource is any land or water area available for outdoor recreation use; i.e., recreation is a management objective. This includes both developed and undeveloped acreages.

The recreation facilities outlined in table 5 are for those activities considered to be the basic activities of any recreation development. These are the primary activities for which facilities must be developed.

A further explanation is needed with respect to recreational use of lakes and streams. The legal implications relating to public use of water bodies are summarized in table 6. In general, the State's water rights laws uphold public recreational use of navigable lakes and streams. However, only in Missouri and Tennessee does the public have recreational use of nonnavigable lakes and streams.



Boating and camping at one of the many scenic lakes in the region.

Table 5 - Recreation Resource and Facility Supply, Regional
Summary (acres)

	Total: All Classifications	Category A	Category B	Category C
<u>Recreation Resource</u>				
Water				
Large lakes and reservoirs (500 acres) ^{1/}	1,450,000			
Small lakes and reservoirs (40-500 acres) ^{1/}	780,000			
Streams ^{2/}	7,796 miles			
Land	1,218,429	97,584	208,055	912,790
<u>Recreation Facilities</u>				
Camping	4,684	1,215	2,223	1,246
Picnicking	3,486	1,375	1,348	763
Playing outdoor games and sports	8,968	4,690	3,555	723
Swimming	1,495	801	565	129
Boating	735	351	201	183
TOTAL	19,368	8,432	7,892	3,044

^{1/} Not separated according to area.

^{2/} Not protected from destruction or reserved for recreation.

Table 6 - Recreation Water Rights Law Summary

Legal Concern	S T A T E S						
	ARKANSAS	ILLINOIS	KENTUCKY	LOUISIANA	MISSISSIPPI	MISSOURI	TENNESSEE
Does the ownership of beds of navigable streams lie with riparian owners or with the State?	State--to high-water mark	Riparian owner	State	State	State	State--to low-water mark	State--to low-water mark
Does the ownership of beds of navigable lakes lie with riparian owners or with the State?	State--to high-water mark	State	State	State	State	State	State--to low-water mark
Does the ownership of beds of nonnavigable lakes and streams lie with riparian owners or with the State?	Riparian owner	Riparian owner	Riparian owner	Riparian owner	Riparian owner	Riparian owner	Riparian owner
Is the test of navigability for purposes of determining bed ownership a commercial test?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
What waters of the State are subjected to public rights to use them for purposes such as boating, etc.?	Navigable	Commercially navigable lakes and streams	All public waters in State except nonnavigable lakes	All public waters	Navigable waters	All lakes & streams which are capable of supporting recreational traffic	All lakes & streams which are capable of supporting recreational traffic

FUTURE PROBLEMS AND NEEDS

Regional Problems

Throughout the region, State and local recreation planners have identified certain common problems: (1) lack of recreation financing, (2) lack of coordination among public agencies, (3) the seemingly insatiable needs of the urban areas, (4) few recreation facilities to meet the needs of the handicapped, (5) environmental deterioration, (6) inaccessibility of facilities, and (7) lack of public awareness and appreciation of recreation problems.

Recreation Financing

The costs of recreation land is continually increasing. Acquisition of land before it is lost to other uses is one method of holding down the cost, but this obviously has limited application. Expenditures for acquisition usually receives less emphasis than for development because of the urgent need for facilities, especially in urban areas; the normally high ratio of development cost to acquisition costs; and the availability of large acreages of undeveloped land which could be developed for recreation even though its location might not be reasonably accessible to the public, i.e., State and national forests.

The sale of bonds by political subdivisions for recreation purposes has not been very popular and this situation is not expected to improve. In certain States, the State legislation places serious restrictions on the ad valorem taxes which may be utilized by the political subdivisions for general operation including development of recreation facilities.

Coordination

There is much duplication of effort within some States in that there may be half a dozen or more agencies concerned with recreation development on a statewide basis, in addition to which are numerous local agencies with regional and local recreation development responsibilities.

Public officials have a moral obligation to their respective constituents to stretch the tax dollar as far as possible through joint planning, facility development, use, maintenance, programming, and financing.

One essential aspect of the problem is for cooperation in sharing of facilities. The degree of cooperation extends from simply locating a park next to a school site; for example, to combined school district-park board planning committees, joint financing for land acquisition, and contract agreements for shared construction, use, and maintenance. Schools, as a result, may have available for their use a wide range of facilities on parklands such as larger playfields, family picnic sites,

and natural environment areas. Park programs gain the use of school facilities such as wet weather play areas (hard surface), ballfields, and other facilities of the physical education program as well as after hours use of the school building.

Another aspect of the problem of lack of coordination could be solved by establishing better communication between State and local governments. For example, recreation planners have stated that State officials concerned with recreation feel that certain recreation facilities are provided most appropriately at the local level. At the same time, however, State officials may be only partially aware of what is being done by local government. At the local level, towns include recreation facilities in their general plans for community facilities, but it seems that they often do so without adequate research to assess their needs in relation to existing facilities and without reference to plans being formulated at the State level.

Urban Needs

The complex problems of urban sprawl; ghetto isolationism; overcrowded playgrounds; inadequate sites to fish, hunt, pitch a tent, or build a campfire; water and air pollution; and packed freeways and main roads to recreational sites are beginning to make themselves known throughout the basin.

With more and more of the population becoming urban and suburban, these problems are not going to cure themselves or vanish. One of the central concerns of urban planners in enhancing the quality of urban living has been the provision of recreation facilities. The importance of such resources was underscored by the reports of several community action agencies in "Report of the National Advisory Commission on Civil Disorders, 1968," which listed the lack of adequate recreation facilities as a major reason ghetto residents feel isolated from society.

Planners indicate that, in many instances, cities are plagued by the lack of funds resulting either from the lack of funding sources that have not already been depleted by higher levels of government or by poor management of existing resources at the local level.

Too few urban areas have organized recreation programs with staffs and funding that are adequate to handle the task ahead.

Needs of the Handicapped

Many areas have been slow in adjusting to the needs of the handicapped. Yet the handicapped have much to gain from adequate recreation facilities. For one thing, physical activity in outdoor recreation holds great promise for helping the handicapped achieve levels of independence. Also, there is evidence that physical, mental, and social competence improves as physical coordination develops.

It seems that transportation is one of the major obstacles in providing recreation opportunities for the elderly, the institutionalized mentally retarded, and persons on the public assistance rolls. Existing recreation facilities are of no use to people who cannot reach them. In effect, this means that nearby city or county recreation sites that are easily accessible by means of public transportation are more likely to be used by handicapped and underprivileged persons than are State and Federal areas that are frequently distant from urban concentrations. Friends, families, and private volunteer groups can, and sometimes do, help to overcome the transportation obstacle, but public effort is needed also. It is anticipated that local recreation plans developed by cities and counties will give attention to the need for low cost public transportation to recreation areas.

Modifications in design, public attitude, and facility operation can also help to make outdoor recreation opportunities available to more of the handicapped persons. Many of the modifications that will facilitate use by the disadvantaged will also improve accessibility and use by those who are without a handicap. Many people have found that when architectural barriers are eliminated for the handicapped, it is also the nonhandicapped who find better accessibility and comfort in using the modified designs.

Environmental Deterioration

Environmental deterioration has many facets, most of which are evident throughout the basin. Ecological change is occurring at a rapid rate. As mentioned previously, many forest areas in the region are being cleared, drained, and converted to agricultural, commercial, or residential uses. This results in destruction of resources vital to recreation. Land management measures are presently removing large areas of bottom land hardwoods and are altering the natural ecology of rivers and streams.

Many of the region's historical sites and scenic areas are being destroyed by natural elements, vandalism, or individual thoughtlessness simply because agencies concerned with preservation of historic sites and scenic areas do not have the funds and/or authority to develop, preserve, and protect these sites.

State parks, recreation lakes, and other major recreation complexes are being threatened by encroachment on recreation property by subdivisions and aesthetically undesirable commercial establishments. In many cases, boundary lines have not been established to assure adequate buffer lands; and in other instances, funding limitations will not permit the purchase of any, or very little, recreation land around a resource. Water quality is also of paramount importance in recreation as is pollution of the land and air.

Inaccessibility of Facilities

Many of the recreational areas and facilities in the region are located at substantial distances from the largest concentrations of population. This is especially true of most of the reservoirs and of the State parks. As a result, the large concentrations of population are not served by adequate recreation facilities. Location of facilities and acquisition of lands where the needs are greatest is a primary consideration for recreation planners.

Public Awareness

Recreation officials have indicated that many residents of the region have little knowledge of, or concern for, the values which outdoor recreation may provide. In general, many people are not aware of the relationship between outdoor recreation opportunity and its contribution to the economy of the local communities, counties, and the State, or to the relationship between outdoor recreation opportunities and the general well-being of the participating individuals. The people of this leisure age need to be concerned enough to cooperate with and to encourage their elected officials to provide land and water areas for their own use, as well as for the use of future generations.

Part of the problem lies with the fact that communication between recreation agencies and the citizens is frequently inadequate. In the past, recreation officials have felt it sufficient merely to provide recreation opportunities. Today citizens not only must be informed of the availability of the various programs but also convinced that participation and utilization are worthwhile. However, communication alone is not enough. Recreation officials and leaders must also have the ability to relate activities and programs to the needs of the community.

Recreation Needs

National Trends

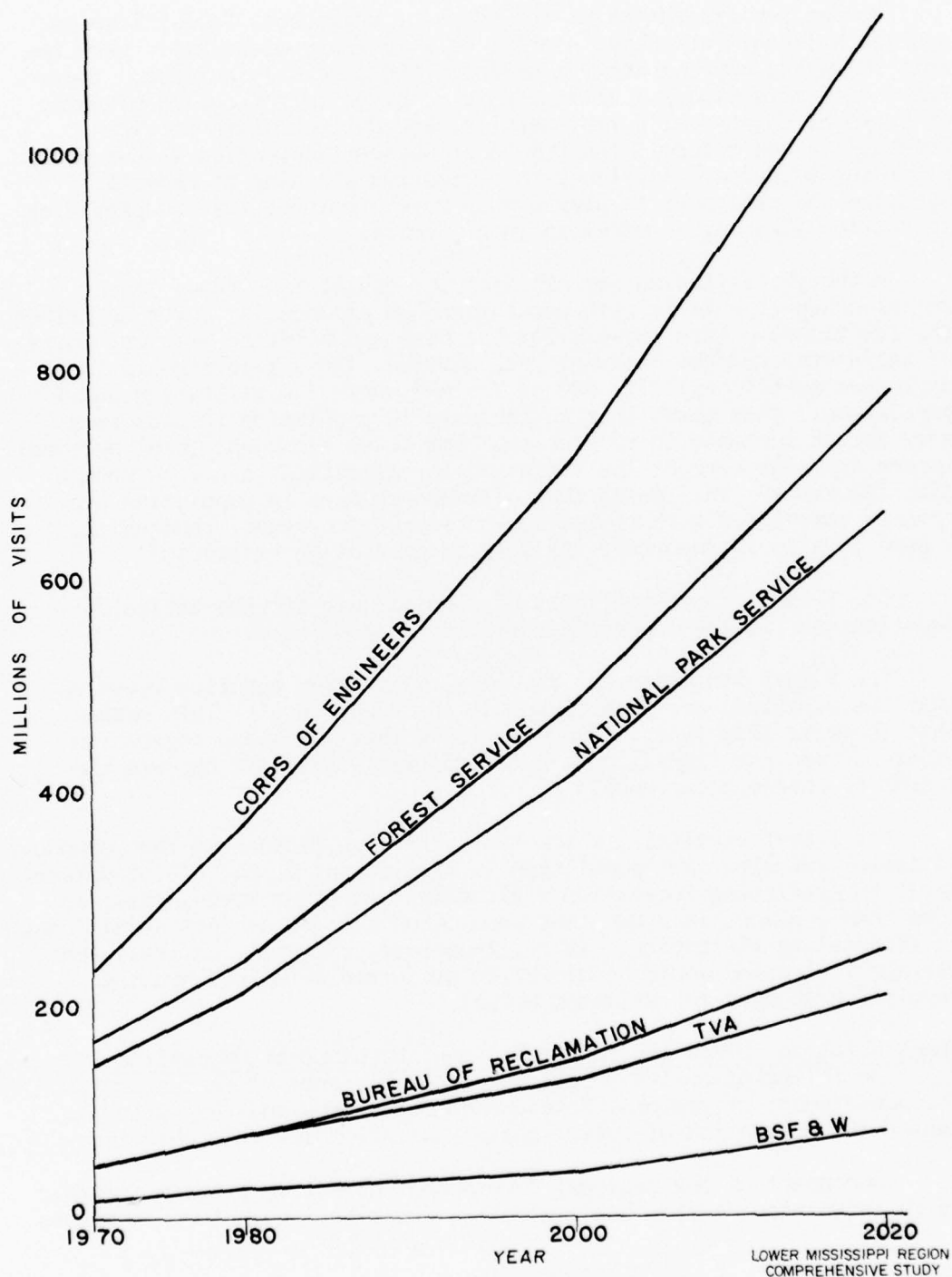
Forecasting visitation at Federal recreation areas. Projections for visitation were determined using the same programs on regression and correlation analysis as were used in making the projections on expenditure and employment levels. Time series information from 1951 to 1970 for visitation at Federal recreation areas was utilized in making the projections. Series C, OBERS, projections for population, total personal income, and other independent variables are also used in the analysis.

The regression of visitation at Federal recreation areas on population and personal income produced the following regression equations for forecasting visitation (table 7). These results are portrayed graphically in figure 5.

Table 7 - Regression Equations for Visitation at Federal Recreation Areas

Visitation on Population		
Agency	Regression Equation	R ²
Bureau of Reclamation	Visitation = -161,860+1.04283 (popul.)	0.96
Bureau of Sport Fisheries & Wildlife	Visitation = - 50,926+0.34328 (popul.)	0.88
Corps of Engineers	Visitation = -720,356+4.67240 (popul.)	0.95
Forest Service	Visitation = -465,713+3.11189 (popul.)	0.98
National Park Service	Visitation = -387,473+2.63950 (popul.)	0.93
Tennessee Valley Authority	Visitation = -107,749+0.81399 (popul.)	0.94

Visitation on Total Personal Income		
Agency	Regression Equation	R ²
Bureau of Reclamation	Visitation = -16,729+9.76969 (total personal income)	0.96
Bureau of Sport Fisheries & Wildlife	Visitation = - 3,822+3.35892 (total personal income)	0.97
Corps of Engineers	Visitation = -74,086+44.60940 (total personal income)	0.99
Forest Service	Visitation = -96,502+46.58390 (total personal income)	0.99
National Park Service	Visitation = -28,438+26.30660 (total personal income)	0.98



LOWER MISSISSIPPI REGION
COMPREHENSIVE STUDY
**PROJECTED VISITATION
AT FEDERAL OUTDOOR RECREATION AREAS**

Recreation visitation at the Corps of Engineers, Forest Service, and the National Park Service areas will increase drastically over the next 50 years; approximately a sixfold (600 percent) increase. Therefore, much more emphasis will need to be given to recreation planning at Corps of Engineers, Forest Service, and National Park Service holdings in the future. The Bureau of Outdoor Recreation is currently providing technical assistance in recreation planning to Federal agencies and will need to play a much more prominent role in providing recreation planning services in future years.

Although visitation for all agencies exhibits a strong linear relationship ($Y = A + BX$) with population, an exponential curve describes the relationship more closely for the Fish and Wildlife Service, Corps of Engineers, and the National Park Service. This relationship is expressed as follows: $Y = A^{BX}$ or $Y = AX^B$ where Y = visitation and X = population. This means that an increase in population results in a very abrupt increase in visitation. For these agencies, total personal income explains more of the variation in visitation than does population increases. This means that although changes in population are closely correlated with visitation at recreation areas, changes in income is also an important variable in predicting visitation.

The F and T tests are tests of significance for the entire equation and for the dependent variable, respectively.

The F test statistic for the above regression equation revealed that the equations are significant at the 0.001 level. This means that there is less than 1 chance in 1,000 that the above regression equations are not significant in forecasting visitation but are the result of chance occurrence.

The T test statistic, which tests the significance of the dependent variable, revealed that population is significant at the 0.0005 percent level in predicting recreation visitation. In other words, there is less than 1 chance in 2,000 that population changes are not significant in forecasting visitation. It is, therefore, extremely unlikely that average visitation would be closer to projected actual than using population changes to estimated actual.

Needs Relating to Realization of Regional Development Objectives

The following analysis outlines the importance of recreation to the achievement of regional development objectives and the rationale behind the assumption of out-of-basin visitation for this objective.

Components of the regional development objective program toward which recreation development can make a contribution include increases

in regional income, increases in regional employment, increasing the stability of the regional economic base, enhancement of environmental conditions, and achieving desirable population dispersal and urban-rural balance through distribution of population and employment opportunities.

Recreation as an export industry. The economic significance of the recreation industry in a local economy derives from its characteristics as an "export" industry; that is, an exchange of goods and services originating in the area for income originating outside. The significance of this distinction lies in the fact that a local economy must "export" in order to pay for "imports" of goods and services which it cannot produce but on which its living and its growth depend.

Any area lacking the natural, human, and manmade resources of self-sustaining growth, must depend for its growth of output and real income on its exports to other areas. The recreation activities of nonresidents, spending income originating outside the area, generate "exports" whereas the residents, while they are a source of employment and income within the local spending-saving pattern, involve an exchange but no increase in local income. However, to the extent that local recreation expenditures substitute for those which would otherwise be made outside the area, they may be considered "export substitutes," with effects similar to exports. In essence, the "a penny saved is a penny earned" maxim applied on a large scale. This means that if the Lower Mississippi Basin residents, instead of earning their money in the basin and spending it on recreation outside the basin, could find recreation enjoyment closer to home, it would also have a very positive effect on the economy of the basin.

The multiplier effect. The impact of recreation on a local area depends on the nature of its recreation resources, the volume of visitors it attracts, the volume of their expenditures, and the extent to which the expenditures are retained in the area to pay for goods and services locally produced. The effect of the latter is known as the "multiplier effect."

A "multiplier" is an estimate of the effect on the employment of an area produced by the addition of a single job in the area's "export" (or "basic") employment. Each job yields income and most of the income is spent for goods and services. Some of the goods and services are produced locally and generate more jobs and more income, and so on. Some are imported and generate no jobs locally except those required for importing and distributing. In other words, the economic impact of expenditures does not cease with the original outlay but circulates through the economy. Effects of the new travel dollar are first felt by the firms providing goods and services to the out-of-State traveler. These firms, in turn, pass on part of the new dollar flows to their suppliers; e.g., restaurants to wholesale food distributors, the distributor to food producers or farmers, farmers to agricultural

machine producers, etc. As the money continues to circulate, more firms become involved and are exposed to its impact. Of course, such effects do not continue indefinitely but are eventually finalized due to "leakages" from the local economy through savings, taxes, and out-of-State purchases by firms in the expenditure chain. However, leakage from a local economy often creates additional demand and income in the regional economy. The whole chain of effects can be summed up in one composite multiplier.

The broader the economic base of an area and the wider the variety of goods and services produced, the smaller the "leakage" in imports, and the greater the multiplier effect of an additional job in "export" production. To put it another way, effective demand has no local effect if there is no local supply.

There is some disagreement regarding the magnitude of the "multiplier effect." However, there is no argument regarding the fact that the original expenditure is multiplied or re-spent. No attempt was made in this study to measure the multiplier effect; however, it can be expected to be approximately 2 to 3 for small towns, and 3 to 4 for cities. It is also recognized that an interrelationship exists among all firms and thus some money originally generated by other firms finds its way through the travel industry.

Employment in the recreation industry. The onsite production and consumption of recreation "exports" has significance as regards employment opportunities and urban-rural balance in the Lower Mississippi Basin. Two alternative methods of dealing with unemployed and underemployed people are available. Either jobs are created where the unemployed live or the unemployed are moved to existing job opportunities. The movement to the job opportunities is usually a natural one for those workers with adequate skills or sufficient initiative to acquire the skills. For the unskilled or semiskilled, there are many problems associated with retraining and resettlement. Because of its particular characteristic in bringing the customer to the industry, recreation offers special opportunities to bring work to these unemployed. By-and-large, the unemployed labor force in the rural areas has limited skills and is less mobile to move to jobs elsewhere. It happens to be this type of labor force which constitutes the bulk of the recreation industry's labor needs. However, the seasonal nature of recreation is reflected in irregularity of employment which limits annual earnings and tends to attract workers from the fringes of the labor force. Although there is evidence of the success, in many segments of the industry, of lengthening the recreation season by capitalizing on the rising income and increasing time and taste for a variety of recreation activities, the industry remains one of the most seasonal.

Outlook for the future. Some of the States in the region are exploring opportunities and developing plans to assist private enterprises in the financing of tourism and recreation. This has been quite successful in other States. For example, State leasing of recreation areas for private development is authorized in Oklahoma. This authorization by the Oklahoma Legislature allows the State to construct lodges and lease them to private enterprise. One of the requisites for leasing the lodges is that they be leased in an amount greater than that necessary to fund the bond issue.

The State of Alaska has enjoyed a great deal of success with its State Development Corporation. This State corporation can make loans to the private sector with participation from financial institutions. This development plan was created to assist in the general economic development of the State and can make loans for all types of business activities. The uniqueness of this law is that it provides money not only for industrial and agricultural activity but also for recreation programs. Alaska has realized that recreation enterprises can strengthen a State's economic stability and provide employment opportunities for its citizens.

Rhode Island has developed a plan whereby they guarantee up to 75 percent of the total project cost for building tourist facilities. Guaranteed mortgages for industrial plants has been a reality for many years. However, incentive financing for tourist and recreational development is new.

The State of Pennsylvania has developed yet another way to develop its recreation and tourist areas by State assistance. Pennsylvania has developed nonprofit tourist promotion agencies authorized to receive grants from the State. The tourist promotion agencies are created to encourage and stimulate tourism by allowing local and regional areas to promote their own uniqueness. Under the formula for the distribution of State funds, no agency is eligible for less than \$1,000 nor more than 20 percent of the total appropriation.

Regardless of the type of financing though most appropriate, it seems evident that recreation can do much to assist in achieving the objectives of the Regional Development Program and that some means of financial and technical assistance must be made available, if needed, to entrepreneurs and corporations providing recreation services.

In addition to financial assistance, individuals and groups comprising the recreation industry or potential recreation industry need planning assistance in developing recreation resources. The Bureau of Outdoor Recreation is currently offering this technical assistance service to both public and private recreation groups, and the demand for this type of service is predicted to increase in the future.

There are three different types of recreation development within the Lower Mississippi Basin: (1) the community waterfront development utilizing a combination of public and private funding and designed primarily for day use, passive recreation; (2) the visitor destination complex, utilizing a combination of public and private funding and designed primarily for vacation and overnight use; and (3) the private enterprise, which can satisfy day use or vacation needs.

Community waterfront development. Waterfront development can be important to a community economically in that it increases the value of the surrounding land and also serves to attract new residents and new industry to the community. Many cities and towns were built either next to or near some body of water. This was necessary to insure their water supply, sewage disposal, and in some cases transportation.

Today, many of these urban waterways are open sewers. Even in cases where the water itself is not polluted, the waterfront often consists of old warehouses, marginal industries, and assorted shacks. Since the city first developed on the river, this would naturally be the oldest part of the city and generally the part most in need of redevelopment. In many cases, the conditions which necessitated the original waterfront development, no longer exist. It is no longer necessary, for example, to locate directly on the riverbank to provide municipal water and sewage. Throughout the country, cities and towns are beginning to realize the potential of their waterfronts. Blighted eyesores are being turned into community focal points. Redevelopment efforts vary in scale and scope, depending on the town and the waterfront.

Aesthetic enhancement is the element common to most redevelopment. Any town, regardless of size, can mount a cleanup, fixup, paintup campaign if the citizens are properly motivated. This waterfront beautification can then serve as a "jumping-off point" for other more ambitious projects. Typical examples of redevelopment include scenic drives and walkways, parks, and civic buildings.

The scale of redevelopment depends largely on the size of the town. The scope is largely determined by the motivation of public officials, civic leaders, and interested citizens. There are a few examples of successful redevelopment efforts within the Lower Mississippi Basin; but there are many more communities, both large and small, where development is needed and could give tremendous thrust to the economic, social, and cultural life of the community.

One such example of successful redevelopment efforts is in the small (population 7,000) delta town of Leland, Miss. Deer Creek runs through the center of town and has been a source of community pride for the past 30 years, due primarily to the efforts of several local garden clubs. A scenic drive and linear park parallels both sides of the

creek. The park is presently used for passive recreation and is also the scene of an annual Christmas pageant.

Deer Creek is now at the "jumping-off point." Present plans call for the addition of a playground and picnic area and the construction of a pioneer museum and visitor information center. The visitor information center will serve to coordinate recreation activities in the community and act as a clearinghouse for hunting, fishing, and sightseeing information.

The Deer Creek project is an example of "grass roots" accomplishment by local people working under local leadership. The project was begun as a beautification effort and expanded to include passive recreation. It presently includes little league baseball, played on adjoining school playing fields, and in the future will include the aforementioned additional development. Stream beautification, therefore, served as the basis for a fairly extensive recreation project, benefiting both local people and visitors.

The benefits of such a project to the community are not limited to recreation and aesthetics. As mentioned before, the attractiveness of an area as a place to live is frequently as much of a determining factor in industry location as are the traditional factors. Therefore, waterfront redevelopment can also bring about a desirable economic stimulation of the area.

The visitor destination complex. There are two classes of tourist attraction or "product" that can serve as the focus of a visitor destination complex--natural and created. Natural attractions include lakes, rivers, mountains, canyons, waterfalls, forests, and other geographic features. This category also includes historical and cultural features of the area.

There are also "created" attractions. Presumably, Disneyland will remain the worldwide standard of created attractions for many years, but there are many other less spectacular examples. For instance, there are no natural or historical reasons for a Shakespearean Festival in Ashland, Oreg., but a Shakespearean Festival is put on in Ashland and has become one of the mainstays of Ashland's economy.

There are many opportunities for both types of development within the Lower Mississippi Basin. For example, southern Louisiana is an area rich in culture and historical resources. There are many developments in and around New Orleans designed to capitalize on, and implement, these natural resources.

There are also opportunities for recreational developments utilizing a combination of natural and created attractions. Lafayette, La., is one such community where a conceptual plan has been developed outlining a balanced recreational development designed to complement the many

festivals held in Lafayette and nearby southwest Louisiana communities. The proposed Acadian Tourism-Recreation Development would be centered around two connected lakes--Lake Martin and Lake Acadie. Included in the proposed development is an Acadian village, nature trails, a zoo and bird sanctuary, boating, an epicurian center, a fishing lodge, a trailer park, and camping, cabins, and restaurants.

There are many other areas in the Lower Mississippi Basin which have historical significance. In Mississippi, the Vicksburg and Natchez areas are excellent examples of sites which could be further developed to attract tourists using the vast historical reserves of the area as a "drawing card."

Historic sites, even though they are not very effective in holding a visitor for any length of time, are capable of drawing a very large number of visitors. These historic sites, which are fixed, need to be related to other recreation developments, whereby the historic attraction serves to bring in the volume of visitors, and other recreation facilities keep them in the area.

If the drawing power of the attraction is not sufficient to bring in any but day users, the services they require are few and their expenditures will be small. Where the attraction draws visitors from farther away and it becomes necessary for them to spend a night in the area in order to enjoy its resources, opportunities for recreation industry proliferate. The impact will be a function of the variety of things to do which keep the visitor there and the number of things he can find to spend money on. The distinctive center of the recreation area, as well as location and the attraction it affords, also becomes vital.

An awareness of the different effects of recreation facilities implies that to achieve the maximum economic impact, development and investment efforts, both public and private, need to strike a balance between those facilities which bring volumes of visitors and those facilities of a labor-intensive nature which create employment and capital. The implications in the sphere of public control are that public investments should be geared to multiple purpose recreation use and should provide opportunities for private investment. Where heavy public investments are made, especially in regard to public works projects with recreation potential, commercial recreation and private development should be made part of the overall development concept.

The small entrepreneur. The smallness of recreation establishments, in terms of employment and investment, is well-documented. The Census of Business surveys reveal the small average employment among the several types of service establishments. A study prepared in 1966 for the Bureau of Outdoor Recreation by Chilton Research Services entitled "Private Sector Study of Outdoor Recreation Enterprises" further

substantiates the fact that private outdoor recreation enterprises are predominately small. The study found that only 5.6 percent of all enterprises employ five or more persons year-round, and even during the peak of the season no more than 15.4 percent have five or more employees. Over three-fourths of the establishments have no year-round full-time employees.

There are many opportunities for the small enterprise in the Lower Mississippi Basin. The many diverse forms of these enterprises are limited only by the imagination.

Income-producing recreation opportunities may crop up in the most unexpected ways and places. The "Handbook of Outdoor Recreation Enterprises in Rural Areas" prepared by the Farmers Home Administration relates these examples of entrepreneurship--one farmer was about to tear down an ancient sod house on his prairie farm. Instead he decided to restore it as a tourist attraction and charge \$1 per car to come in and look it over. It happened to be near a main highway so it developed into a thriving recreation business. Another farmer put up a sign, "\$1 To See The Cows Milked," and soon found he had to buy more cows to fill the demand.

The point is that not all recreational resources need to be spectacular. "Beauty is in the eye of the beholder," they say. So also it might be said, "Recreation opportunity is in the eye of the imaginative developer"--within limits.

Numerous recreation surveys have found that "Driving for Pleasure" is by far the most popular outdoor entertainment. But the report made no estimate of how many of these pleasure drivers would do something more meaningful if the opportunity were available. The reason many keep driving is no doubt because the places they would stop at are either too crowded or have a "No Trespassing" sign.

Needs Summary

The amount of additional acreage needed for outdoor recreation is summarized in table 8. Water needs are presented in terms of total net acreage needed and also in terms of net acreage needed for unrestricted boating; i.e., lakes of at least 500 acres. Although general boating can take place on either large or small water surface areas, safety precautions require that such activities as water skiing occur on lakes of at least 500 acres.

As stated previously in the Methodology Section, the individual boating space standard used in this appendix is 20 acres per boat for general boating and 40 acres per boat for water skiing. This is the safety standard stated in the State of Louisiana Comprehensive Outdoor Recreation Plan and adopted by the Recreation and Fish and Wildlife

Subcommittee. This boating space standard allocates much more surface area to each boat than does the boating space standard of the other States in the study area as expressed in their comprehensive outdoor recreation plans. The needs expressed in table 8 would, therefore, be much lower or could be completely satisfied by existing supply if the boating space standard for another State is used.

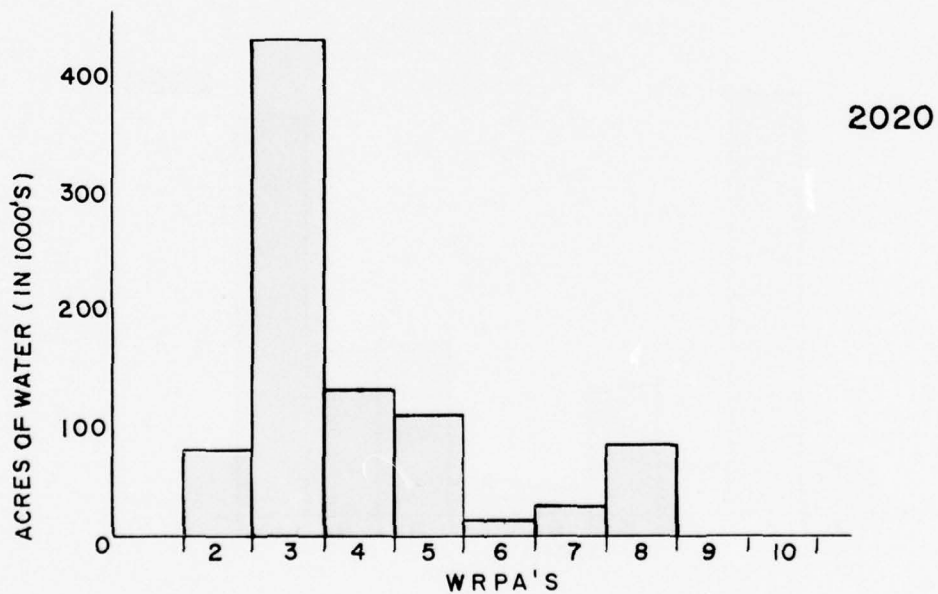
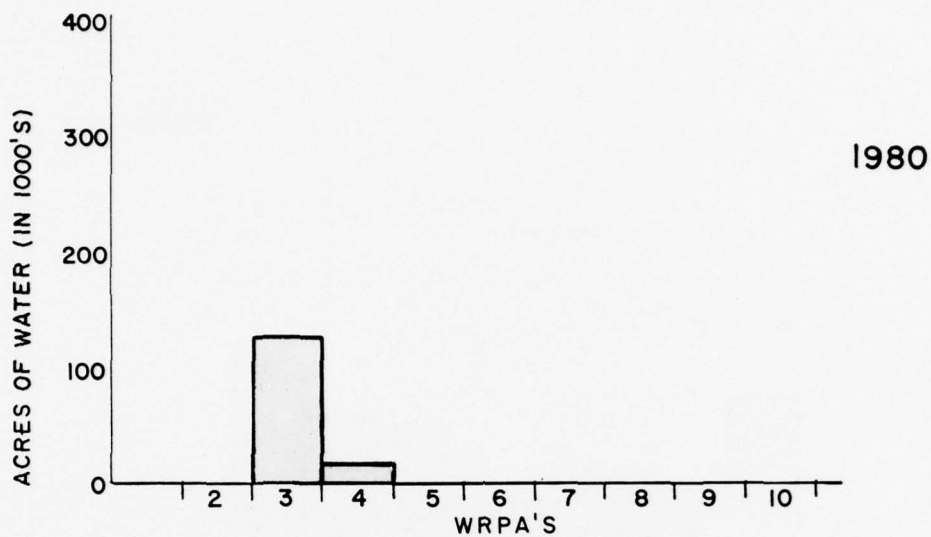
Land needs are segregated into three area classifications and expressed as net needs for facilities and net needs for recreation areas (development and buffer zone acreage).

Needs are displayed for the National Income Objective and the Regional Development Objective. The needs for the Environmental Quality Objective are the same as for the National Income Objective because population projections, and therefore demand, is the same for both objectives.

The relative magnitude of the needs as between WRPA's is illustrated in figures 6, 7, and 8. Category C needs are not illustrated because they are relatively small and not effectively portrayed unless the graphic scale is greatly expanded. Only the National Income Objective needs are used because the relative magnitude of the needs as between WRPA's is essentially unchanged as between objectives.

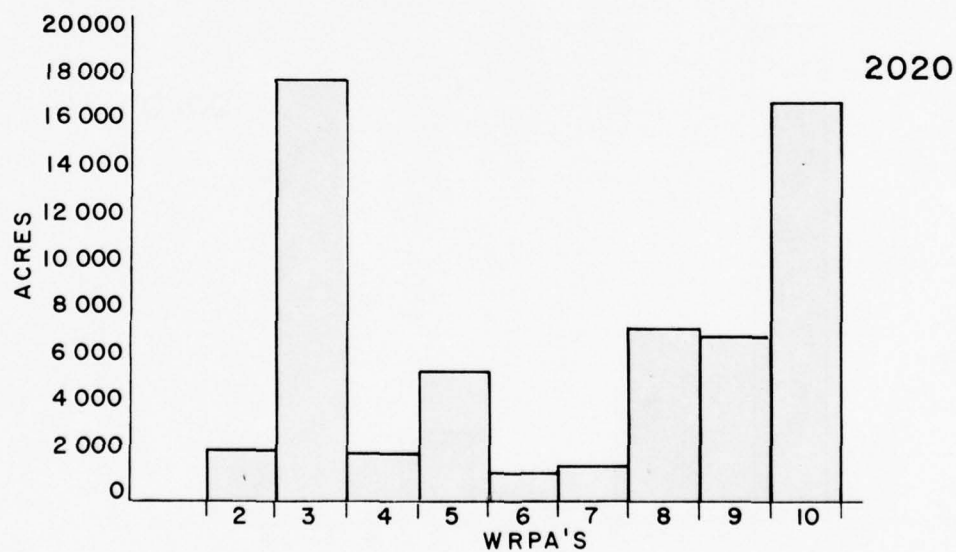
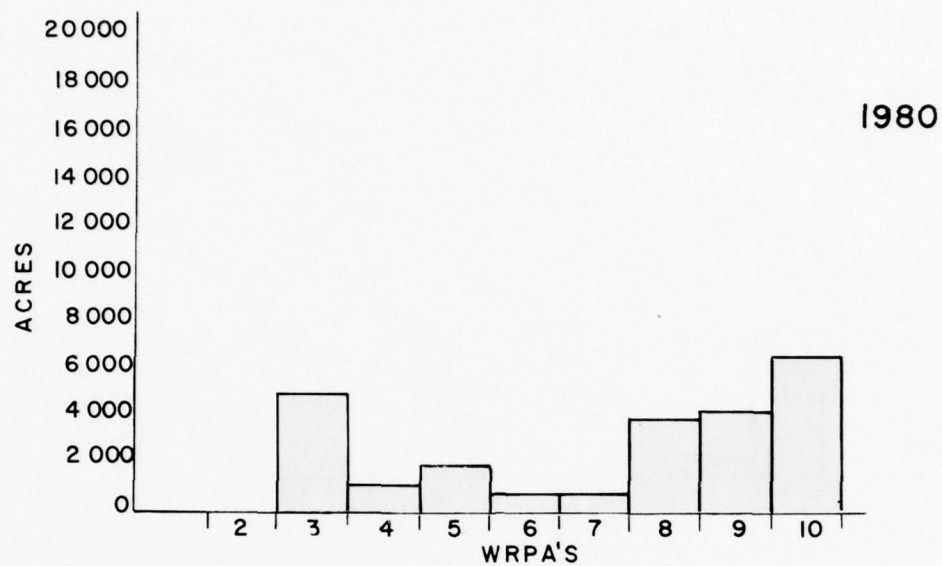
The relative severity of the need for recreation areas in the WRPA's with large urban areas within their boundary becomes painfully evident by the year 2020--WRPA 3, Memphis; WRPA 10, New Orleans; WRPA 8, Baton Rouge; and WRPA 9, Lake Charles. The fact that WRPA's 8, 9, and 10 are located in the water rich southern portion of the region accounts for the fact that WRPA 3 is the only area projected to experience a substantial shortage of recreation water.

A further analysis of these data and alternative methods of needs satisfaction are presented in the Plan Formulation Appendix.



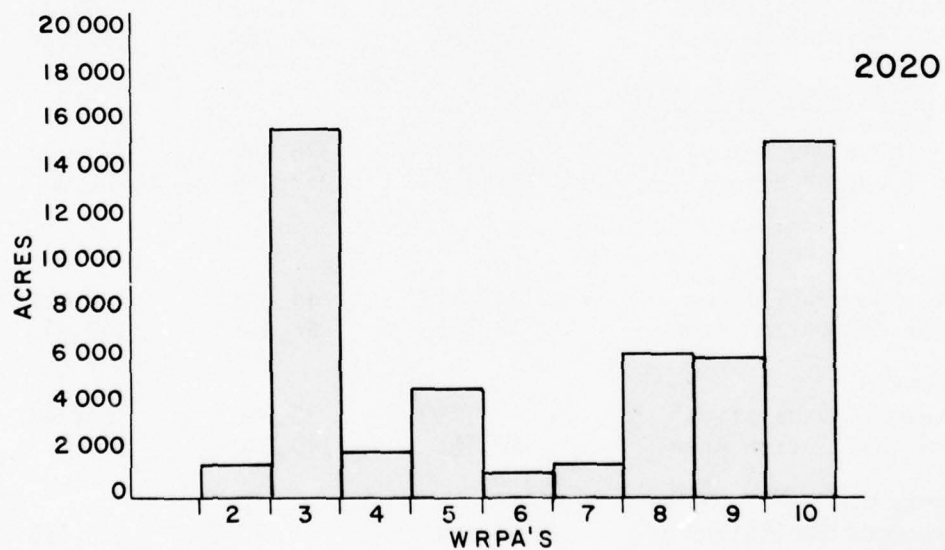
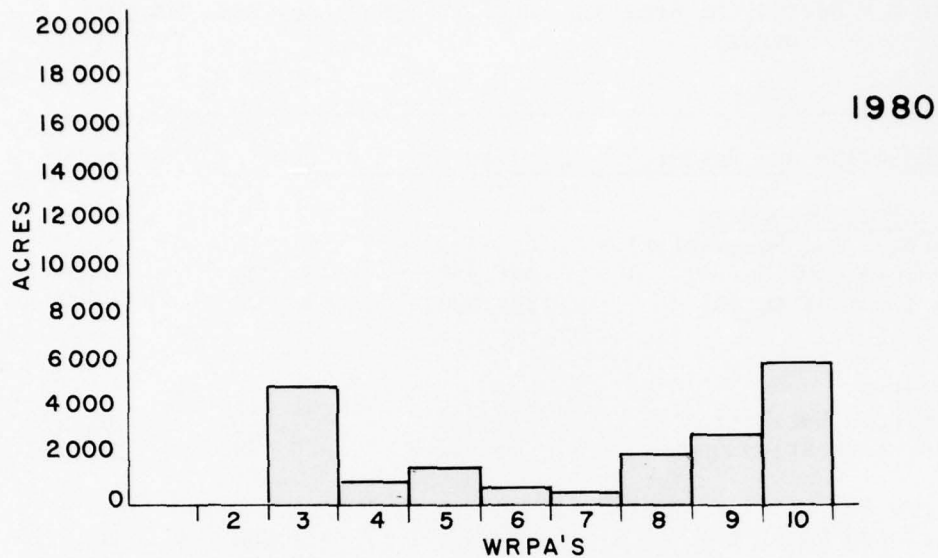
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COMPREHENSIVE STUDY

**WATER SURFACE AREA NEEDS
BY WRPA'S, 1980 AND 2020**



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**CATEGORY "A" RECREATION FACILITY NEEDS
BY WRPA'S, 1980 AND 2020**



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**CATEGORY "B" RECREATION FACILITY NEEDS
BY WRPA'S, 1980 AND 2020**

FIGURE 8

Table 8 - Recreation Area and Facility Needs, Regional Summary
(acres)

Program Objective and Resource	1980	2000	2020
<u>National Income Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	107,900	270,200	567,000
Total (over 40 acres)	294,600	776,200	1,584,000
Land			
Category A			
Developed Facilities	21,876	37,470	62,576
Total Recreation Area	43,752	74,940	125,152
Category B			
Developed Facilities	18,943	31,800	53,273
Total Recreation Area	75,772	127,200	213,092
Category C			
Developed Facilities	3,523	5,943	10,142
Total Recreation Area	35,230	59,430	101,420
<u>Regional Development Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	124,000	328,000	700,000
Total (over 40 acres)	351,000	957,000	1,951,000
Land			
Category A			
Developed Facilities	24,196	44,098	74,721
Total Recreation Area	48,392	88,196	149,442
Category B			
Developed Facilities	20,953	37,369	63,742
Total Recreation Area	83,812	149,476	254,968
Category C			
Developed Facilities	3,910	7,301	12,316
Total Recreation Area	39,100	73,010	123,160

W R P A 1

PHYSICAL DESCRIPTION

WRPA 1 consists of the area between and including the Mississippi River main line levees below Cairo, Ill.; approximately 1.6 million acres. Where no levees are present, WRPA 1 extends only to the top bank of the river. The main stem levees on the east bank extend intermittently from the vicinity of Hickman, Ky., to a point north of Vicksburg, Miss. The east bank levees also continue from Baton Rouge, La., to Bohemia, La., which is approximately 45 miles above the Head of Passes. Because of the high loessal bluffs along much of the east bank, there are many sections, such as from Vicksburg to Baton Rouge, where the levees are not needed. These high loessal bluffs provide a spectacular scenic overlook for viewing the Mississippi River.

The main stem levees on the west bank of the river start at a point just south of Cape Girardeau, Mo., and extend to Venice, La., just above the Head of Passes.

The terrain of this area is very flat. There are numerous oxbow lakes and other small and large water bodies throughout this WRPA.

There is, of course, a wide variation in climate between the coastal portion of this WRPA and the northern portion. The average annual temperature varies from 70° F. on the gulf coast to 58° F. in Illinois. Average annual precipitation varies from 64 inches on the gulf coast to 44 inches in the north.

DEMOGRAPHIC AND SOCIOECONOMIC ANALYSIS

There are no urban or built-up areas in this area.

RESOURCE AVAILABILITY AND NEEDS

Water and Related Land Resource Profile

WRPA 1 encompasses approximately 1,191,000 acres of land and 368,000 acres of water. Most of this land is unavailable to recreationists unless they lease a specific area for recreation purposes. The levees included in this acreage either are owned by public levee districts or an easement has been granted for levee purposes,

while most of the land between the levees is in private ownership. There are no Federal lands in WRPA 1.

At present, about 14 percent of WRPA 1 is used for cropland. Although it would seem that the batture lands would be relatively free from land use change pressures due to the frequency of flooding, this has not always been the case. There has been a dramatic increase in land clearing and draining in recent years; and if this trend continues, the recreation potential of the WRPA for resource oriented recreation activities will be severely reduced.

Agricultural Economic Report Number 215 prepared by the Economic Research Service of the Department of Agriculture states that the amount of cropland inside levees increased 100 percent between 1950 and 1969 resulting in a substantial reduction in forest land. Although there have been substantial land use changes in the batture lands, the report states that cropland has still not attained the dominant use position in the batture lands that it holds in the rest of the alluvial valley.

Areas of Unusual Opportunity

The entire WRPA has the potential to become one of the most significant recreation areas in the country.

There are two reasons why the batture lands offer exciting opportunities for outdoor recreation. One concerns the increased pressures for recreation use brought about by the population centers developing along the river. The other concerns the decreasing availability of alternative recreation areas in the alluvial valley.

Population projections indicate that by the year 2020, one-half of this region's population will be located in the three metropolitan areas of Memphis, Baton Rouge, and New Orleans which are located immediately adjacent to WRPA 1. In addition to these metropolitan areas, there are other smaller cities and towns, such as Natchez, Vicksburg, and Greenville, Miss.; Caruthersville, Mo.; and Cairo, Ill.; developing along the river immediately adjacent to WRPA 1.

The batture land along the metropolitan areas of Memphis, Baton Rouge, and New Orleans offers tremendous recreation opportunity due to its close proximity to these population centers. In September of 1970, the U.S. Department of the Interior announced plans to "begin Federal actions directed to the early establishment of 14 major public recreation areas in urban population centers of the Nation." The rationale behind this program was to "establish large park and recreation areas where most of the people live--in the metropolitan areas

of the country." One of the 14 areas chosen for further study is along the Mississippi River extending 20 miles upstream and 20 miles downstream from Memphis. This area is relatively undeveloped due to the frequency of flooding and is therefore available to help serve the recreation needs of the Memphis area. Although the entire WRPA is an area with unusual recreation opportunity, there is a definite sense of urgency with respect to recreation enhancement of the areas close to urban centers.

The batture lands along Baton Rouge are privately owned and unavailable to the public; however, the demand is so intense that a substantial amount of illegal or unauthorized recreation use occurs. This again is an area of outstanding potential.

The world famous French Quarters in New Orleans borders the banks of the Mississippi River. However, at present, no significant recreational use is made of the riverbank area between the French Quarters and the river.

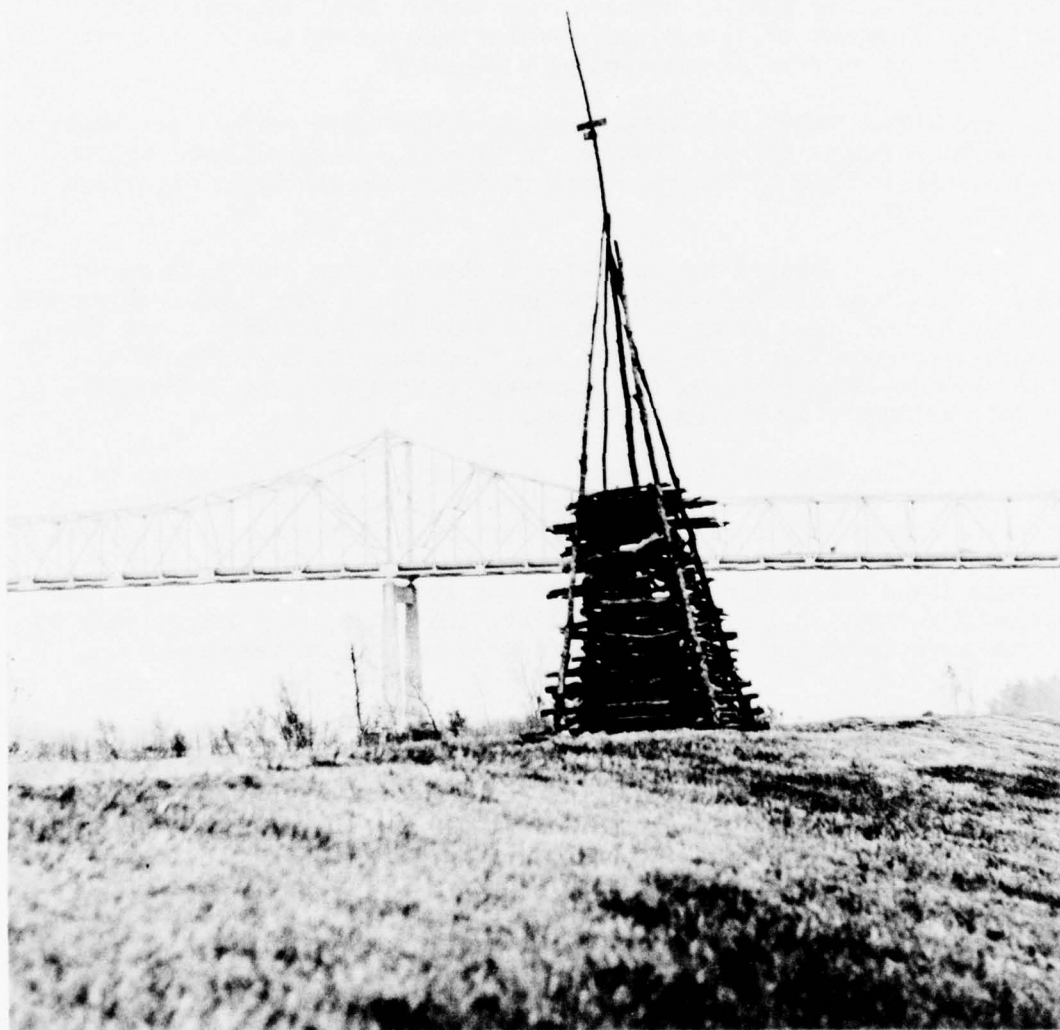
Various studies of the New Orleans metropolitan area have recommended that some use be made of the levees. There have been suggestions for trails and other forms of extensive recreation activity along the complete metropolitan levee system and also suggestions for more intensive development along the downtown portion from the Trade Mart to Jackson Square in the French Quarters.

The decreasing availability of alternative recreation areas in the alluvial valley is a result of changes in land use from forests to cropland brought about by increasing agricultural pressure. As stated previously, Agriculture Economic Report Number 215 indicates that the batture lands are destined to contain the last vestiges of bottom land hardwood forests in the alluvial valley; therefore, they are certain to become more important in future years as a recreation resource.

Supply and Needs Summary

Although there are virtually no developed recreation facilities and very little public land in WRPA 1 (table 9), there is a substantial amount of recreation use. The batture land and oxbow lakes receive much of this use. The main stem of the Mississippi River is considered too dangerous for water sports; however, there are certain areas where it receives extensive use during periods of low water. For example, there is a sand beach area across the river from Vicksburg, Miss., which receives heavy use during certain periods of the year.

Periodic flooding in WRPA 1 makes many types of permanent recreation structures infeasible; however, there are many movable recreation facilities, such as picnic tables, portable restrooms, etc., which could be placed in the WRPA.



A bonfire pile waiting for nightfall on the Mississippi River levee, Baton Rouge, Louisiana.

Table 9 - Recreation Resource and Facility Supply in WRPA 1
(acres)

	Total: All Classifications	Category A	Category B	Category C
<u>Recreation Resource</u>				
Water				
Large lakes and reservoirs ^{1/}	368,000			
Small lakes and reservoirs ^{1/}	0			
Streams ^{2/}	97 miles			
Land	0	0	0	0
<u>Recreation Facilities</u>				
Camping	0	0	0	0
Picnicking	0	0	0	0
Playing outdoor games and sports	0	0	0	0
Swimming	0	0	0	0
Boating	0	0	0	0
	<hr/>	<hr/>	<hr/>	<hr/>
TOTAL	0	0	0	0

^{1/} Not separated according to area classifications.

^{2/} Not protected from destruction or reserved for recreation.

MAP INDEX

Recreation Resources - WRPA 1

Map Location No.	Name of Area	Managing Agency	Description
1	Albemarle Lake		749-ac. Mississippi River oxbow lake
2	Centennial Lake		352-ac. Mississippi River oxbow lake
3	Chotard Lake		980-ac. Mississippi River oxbow lake
4	Dorena Access Area	Missouri Conser- vation Department	Public launching area
5	Gassoway Lake		800 acres
6	Glasscock Lake		1,773 acres
7	Horn Lake		850-ac. Mississippi River oxbow lake
8	Lake Beulah		980-ac. Mississippi River oxbow lake
9	Lake Ferguson		Mississippi River oxbow lake
10	Lake Lee		1,096 acres
11	Lake Mary		2,250 acres
12	Lake Whittington		4,000 acres
13	Mississippi River		954 miles
14	New Madrid Bend Access	Missouri Conser- vation Department	Public launching ramp
15	Old River Lake		4,160 acres
16	Palmyra Lake		1,773 acres
17	Rodney Lake		666-ac. Mississippi River oxbow lake
18	Tunica Cut-Off		3,152-ac. Mississippi River oxbow lake
19	Yucatan Lake		1,997-ac. Mississippi River oxbow lake

PHYSICAL DESCRIPTION

WRPA 2 includes most of 16 counties in northeastern Arkansas and 10 counties in southeastern Missouri; an area of 10.7 million acres.

The area is, in general, flat alluvial valley land bounded by foothills on the north and west. The WRPA is bisected by Crowley's Ridge, a 140-mile long ridge extending from the Ozark Foothills of Missouri to Helena, Ark.

Major rivers within this planning area include the White, the Arkansas, and the St. Francis.

The climate is mild with an average annual temperature of about 60° F. The average annual precipitation is about 48 inches.

DEMOGRAPHIC AND SOCIOECONOMIC ANALYSIS

Population has decreased from 777,234 in 1950 to 640,402 in 1968. In 1950, approximately 23 percent of the population was urban; by 1970, the proportion had increased to 40 percent and the urban population is projected to be 64 percent by the year 2020. This represents a 2.8 percent yearly increase for urban areas and a 1.3 percent decrease for rural areas.

Accompanying, or most likely precipitating, the decrease in population was a corresponding decrease in employment from 243,608 in 1950 to 214,400 in 1968. Much of this decrease in employment occurred in the agricultural sector and can be attributed to changes in agricultural methods. Such changes included an increase in the size of farms and in their mechanization, resulting in less on-farm employment and an outmigration of farm labor. For example, average farm size increased from 102 acres in 1949 to 351 acres in 1970 while during the same period the actual number in farms declined by 71 percent. Agricultural employment decreased from 118,684 in 1950 to 64,898 in 1960 and is projected to be about 32,260 by 1980. This dramatic decrease in agricultural employment was, however, partially offset by the dramatic increase in manufacturing employment.

These changes in resident population and in their way of life have important ramifications in regard to outdoor recreation. The increasing need for urban recreation opportunities is clearly evident in light of increasing urban populations. In addition, the increased

amount of leisure time available realized as a result of the change in the employment base from agriculture to manufacturing will create additional demand for both urban and rural recreation opportunities. As the urban residents have more leisure time, they will return to the rural settings from whence they came to visit and engage in recreation activities on Category B and Category C recreation areas which are not available in their new urban setting.

RESOURCE AVAILABILITY AND NEEDS

Water and Related Land Resource Profile

There has been a rapid and dramatic change in the WRPA 2 recreation resource base in the last 30 years. This change is the subject of a report by Trusten H. Holder under the sponsorship of the Arkansas Planning Commission entitled "Disappearing Wetlands in Eastern Arkansas." The area covered in the report is roughly identical to the Arkansas portion of WRPA 2.

Mr. Holder's report illustrates the magnitude of the land use changes. In 1940, there were approximately 4.3 million acres of forest land in the Arkansas delta. By 1970, that acreage had decreased to 1.8 million acres--a 2.5-million-acre decrease in a span of 30 years. This forest land is being cleared and converted to agricultural use--primarily crop (soybean) production. In that forested land is much more valuable than cropland for recreation purposes, it is very likely that unless a concerted effort is made to reverse present trends, those resources of highest value for recreation will be nonexistent in a very few years.

Areas of Unusual Opportunity

Crowley's Ridge

Certainly the outstanding geological feature in WRPA 2, is this 140-mile long ridge that ranges north to south, varies from 1 to 24 miles in width and is 550 feet in height at its highest point.

Geologists conclude that the ridge is the residual product of long, continued erosion although it is widely believed by the local residents to be the product of a modern upheaval. Its existence bears silent witness to the resistance it has had against the erosive forces which have leveled the majority of the rest of the region. Crowley's Ridge runs from southeast Missouri to the town of Helena, Ark., on the Mississippi River.

There is one State park and a National forest (St. Francis) with recreation facilities on the ridge at present. The area has excellent potential for further recreation development because of its topographic relief in relation to the rest of the alluvial valley.



The lodge and swimming area at Crowley's Ridge State Park.

SUPPLY AND NEEDS SUMMARY

The supply of recreation areas and facilities and the needs for increases in that supply are summarized in tables 10 and 11. As stated in the Regional Summary, only a small portion of the supply of land classified as a recreation resource may be suitable for recreation development. Even though land may be owned by a public agency with recreation as one of its management purposes, the land administered by that agency may not be suitable for recreation development.

A further analysis of this and all other WRPA needs information and alternative methods of need satisfaction is presented in the Plan Formulation Appendix.



Enjoying the water and the view at Lake Wappapello State Park, Missouri.

Table 10 - Recreation Resource and Facility Supply in WRPA 2
(acres)

	Total: All Classifications	Category A	Category B	Category C
<u>Recreation Resource</u>				
Water				
Large lakes and reservoirs ^{1/}	22,000			
Small lakes and reservoirs ^{1/}	69,000			
Streams ^{2/}	1,203 miles			
Land	121,984	39,665	42,089	40,230
<u>Recreation Facilities</u>				
Camping	2,635	922	1,687	26
Picnicking	1,000	490	480	30
Playing outdoor games and sports	3,576	2,038	1,538	0
Swimming	141	74	55	12
Boating	43	20	12	11
TOTAL	7,395	3,544	3,772	79

^{1/} Not separated according to area classifications.

^{2/} Not protected from destruction or reserved for recreation.

Table 11 - Recreation Area and Facility Needs in WRPA 2 (acres)

Program Objective and Resource	1980	2000	2020
<u>National Income Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	18,500	43,400	81,000
Total (over 40 acres)	18,500	71,300	155,000
Land			
Category A			
Developed Facilities	0	674	2,497
Total Recreation Area	0	1,348	4,994
Category B			
Developed Facilities	0	0	1,432
Total Recreation Area	0	0	5,728
Category C			
Developed Facilities	0	0	13
Total Recreation Area	0	0	130
<u>Regional Development Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	0	35,000	83,000
Total (over 40 acres)	0	75,000	182,000
Land			
Category A			
Developed Facilities	22,000	52,000	100,000
Total Recreation Area	26,000	94,000	201,000
Category B			
Developed Facilities	0	366	2,427
Total Recreation Area	0	1,464	9,708
Category C			
Developed Facilities	0	0	30
Total Recreation Area	0	0	300

MAP INDEX

Recreation Resources - WRPA 2

Map Location No.	Name of Area	Managing Agency	Description
23	Arkansas Post Natl. Monument	National Park Service	220-ac. national monument
10	Big Oak Tree State Park	Missouri State Park Board	1,007-ac. recreational facilities
2	Clark National Forest	U.S. Forest Service	226,600 acres; two developed campgrounds; camping, picnicking, fishing and swimming
3	Coldwater State Forest	Missouri Dept. of Conservation	4,627 acres
13	Crowley's Ridge State Park	Arkansas Parks, Recreation and Travel Comm.	270 acres; recreational facilities including camping (tent & trailer, cabins, group), pic- nicking, swimming and nature trails
11	Dorena Access Area	Missouri Dept. of Conservation	Public access area; launching ramp
1	Elephant Rock State Park	Missouri State Park Board	131 acres; recreational facilities including swimming and nature trails
21	Hallowell Lake		600 acres
22	Horseshow Lake		1,200-ac. Mississippi River oxbow lake
14	Jacksonport State Park	Arkansas Parks, Recreation and Travel Comm.	20 acres; recreational facilities including camping and picnicking
17	Lake Des Arc		300 acres
18	Lake Greenlee		300 acres
15	Lake Poinsett		550 acres
16	Lake Poinsett State Park	Arkansas Parks, Recreation and Travel Comm.	80 acres; recreational facilities including camping and picnicking
8	Lake Wappapello State Park		
20	Mallard Lake		300 acres
12	New Madrid Bend Access	Missouri Dept. of Conservation	7 acres; public access area; launching ramp

MAP INDEX

Recreation Resources - WRPA 2 continued

Map Location No.	Name of Area	Managing Agency	Description
19	Old Town Lake		900-ac. Mississippi River oxbow lake
4	Sam A. Baker State Park	Missouri State Park Board	5,138 acres; recre- ational facilities including swimming, camping (cabins, tent & trailer) boat and nature trails
20	St. Francis National Forest	U.S. Forest Service	20,600 acres; two recreation areas for picnicking, camping (8 units), swimming and boating
5	Tywappity Community Lake	Missouri Dept. of Conservation	120 acres
9	Wappapello Lake	Corps of Engineers	Completed June 1941. 7,250 acres; recre- ational facilities including picnicking, camping, swimming and boating

W R P A 3

PHYSICAL DESCRIPTION

WRPA 3 is located in the northeast corner of the region and comprises an area of approximately 6.8 million acres. It is based on a hydrological area drained by Mayfield and Obion Creeks in Kentucky; the Obion, Forked Deer, Hatchie, Loosahatchie, Wolf Rivers, and Nonconnah Creek in Tennessee and Mississippi. Topography ranges from the flat delta along the Mississippi River to rolling hills in the eastern portion of the WRPA.

The topography of the area is characterized as primarily flat with rolling hills in the eastern portion.

The average annual temperature is about 61° F. and average annual precipitation is about 51 inches.

DEMOGRAPHIC AND SOCIOECONOMIC ANALYSIS

Approximately 20 percent of the Lower Mississippi Region's population resides in this WRPA. This is one of the few WRPA's that has increased in population during the period between 1950 and 1968; from 1,056,370 in 1950 to 1,246,294 in 1968. The urban percentage has increased from 53 percent in 1950 to 70 percent in 1970 and is projected to increase to 88 percent by 2020. Of the total population of 1,246,294, approximately 62 percent or 767,050 reside in the Memphis area.

There has also been a shift in employment patterns in the WRPA. For example, agricultural employment shifted from 25 percent of total employment in 1950 to 13 percent in 1960. During the same period, manufacturing employment, as a percent of the total, increased from 16 percent to 20 percent. There has also been a substantial increase in per capita income; from \$1,458 in 1950 to \$2,621 in 1968.

Projections indicate a continuation of these trends. For example, Program A projections for the period 1968 to 2020 indicate that agricultural employment is expected to decline by 71 percent while manufacturing employment is expected to increase 208 percent. Per capita income is projected to increase 383 percent during this same time period (Program A projections).

These socioeconomic trends indicate a continued increase in the need for recreation opportunities both for urban daytime use and rural vacation and overnight use.

RESOURCE AVAILABILITY AND NEEDS

Water and Related Land Resource Profile

WRPA 3 contains approximately 72,000 acres of water and 6,746,000 acres of land. Land-use pressures are not as intense in this WRPA as in many of the other ones; therefore, the dramatic shifts in resource use that have been so prevalent in much of the region have not been as prevalent here.

Areas of Unusual Opportunity

Memphis Riverfront

As mentioned previously, the U.S. Department of the Interior as early as September 1970, announced its intention to launch a major nationwide urban recreation study program. One of the 14 areas included in the proposal was the area along the Memphis riverfront, appropriately named the Huck Finn Area.

These lands are not intensively developed due to their vulnerability to flooding; therefore, a unique opportunity exists to use this area of horseshoe lakes, dismal sloughs, sunlit sandbars and islands, all tied together by the river and rich in history and legend, to serve the recreation needs of the Memphis area. The Chickasaw Bluffs are also within the proposed recreation area. These prominent terrain features along the east bank of the river would be excellent areas for scenic vistas and other forms of recreation.

Development of this area could possibly assume the ambitious concept of a "Gateway to the West" theme as was done in St. Louis. There have been other less ambitious proposals for recreational development; i.e., hiking and riding trails. These would require only small investments of resources.

This proposal recognizes the importance of the river in the lives of the residents of the Lower Mississippi River valley. The development of this area for recreation use would result in a tremendous increase in recreation opportunity within the time frame of this study. Inasmuch as this is the only WRPA that has a substantial need for water dependent recreation opportunity and inasmuch as the

majority of all recreation needs in this WRPA originate in the Memphis area, this area does truly offer an unusual opportunity to increase recreation supply.

There are other small rivers and creeks in close proximity to Memphis which have also received attention in regards to proposals for the use of their flood plains as greenbelt areas. The use of these flood plains would also have a significant impact on recreation supply in that it would be readily available to a large urban center.

Supply and Needs Summary

Tables 12 and 13 outline the supply of and needed additions to recreation resources for WRPA 3. Future needs are substantial in this WRPA in that the metropolitan area of Memphis is located within its boundary.



Memphis and the Mississippi.

Table 12 - Recreation Resource and Facility Supply in WRPA 3
(acres)

	Total: All Classifications	Category A	Category B	Category C
<u>Recreation Resource</u>				
Water				
Large lakes and reservoirs ^{1/}	4,000			
Small lakes and reservoirs ^{1/}	36,000			
Streams ^{2/}	822 miles			
Land	66,679	12,696	44,593	9,390
<u>Recreation Facilities</u>				
Camping	71	25	45	1
Picnicking	619	303	297	19
Playing outdoor games and sports	1,686	961	725	0
Swimming	238	148	90	0
Boating	20	13	7	0
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TOTAL	2,634	1,450	1,164	20

^{1/} Not separated according to area classifications.

^{2/} Not protected from destruction or reserved for recreation.

Table 13 - Recreation Area and Facility Needs in WRPA 3 (acres)

Program Objective and Resource	1980	2000	2020
<u>National Income Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	87,800	178,000	329,000
Total (over 40 acres)	204,800	412,100	754,000
Land			
Category A			
Developed Facilities	5,465	10,298	18,072
Total Recreation Area	10,930	20,596	36,144
Category B			
Developed Facilities	4,791	8,957	15,648
Total Recreation Area	19,164	35,828	62,592
Category C			
Developed Facilities	98	168	275
Total Recreation Area	980	1,680	2,750
<u>Regional Development Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	98,000	206,000	390,000
Total (over 40 acres)	231,000	483,000	903,000
Land			
Category A			
Developed Facilities	6,176	12,128	21,759
Total Recreation Area	12,352	24,256	43,518
Category B			
Developed Facilities	5,408	10,532	18,825
Total Recreation Area	21,632	42,128	75,300
Category C			
Developed Facilities	109	196	332
Total Recreation Area	1,090	1,960	3,320



Reelfoot Lake State Park in northwest Tennessee. The lake was formed when the waters of the Mississippi seeped into a huge depression caused by a series of earthquakes in 1811 and 1812.

MAP INDEX

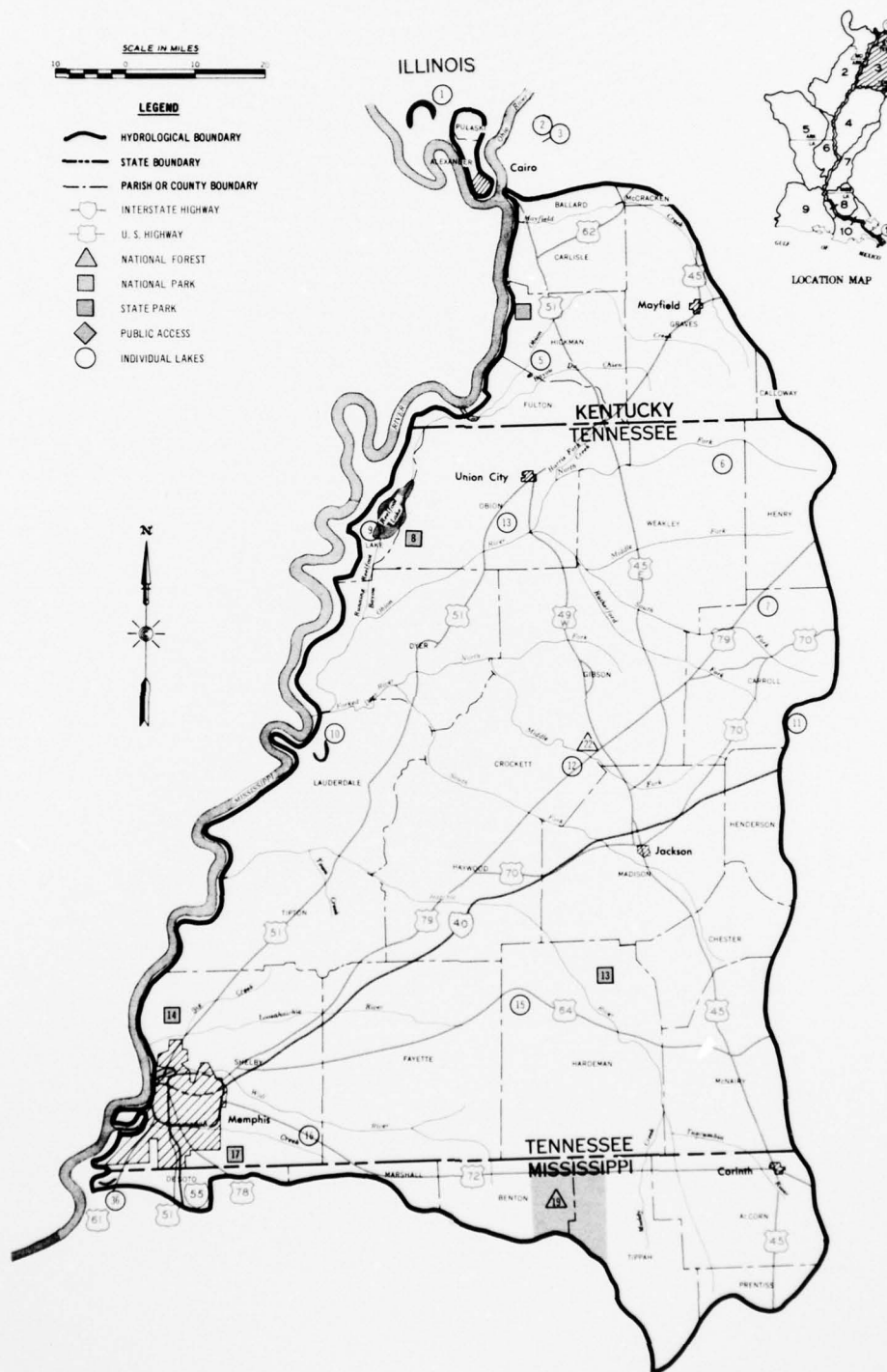
Recreation Resources - WRPA 3

Map Location No.	Name of Area	Managing Agency	Description
7	Carroll Lake	Tenn. Wildlife Resources Agency	100 acres
13	Chickasaw State Park	Tenn. Division of State Parks	250 acres; recreational facilities including camping (cabins and tent-trailer), picnick- ing, boating and swimming
10	Chisholm Lake		Mississippi River oxbow lake, 200 acres
4	Columbus Belmont Battlefield State Park	Tenn. Division of State Parks	
6	Garrett Lake	Tenn. Wildlife Resources Agency	183 acres
16	Herb Parsons Lake	Tenn. Wildlife Resources Agency	177 acres
19	Holly Springs National Forest	U.S. Forest Service	7,800 acres
18	Horn Lake		Mississippi River oxbow lake, 30 acres
1	Horseshoe Lake		Mississippi River oxbow lake
12	Humboldt Lake	Tenn. Wildlife Resources Agency	87 acres
11	Maples Creek Lake	Tenn. Wildlife Resources Agency	90 acres
14	Meeman-Shelby Forest State Park	Tenn. Division of State Parks	12,500 acres; recrea- tional facilities including boating, picnicking, camping (cabins, group lodge, tent-trailer), nature trails, playing field and horseback riding
5	Murphy's Pond	Murray State University	300 acres of water, 2,000-acre swamp; unique ecological area

MAP INDEX

Recreation Resources - WRPA 3 continued

Map Location No.	Name of Area	Managing Agency	Description
9	Reelfoot Lake		10,000-acre natural lake
8	Reelfoot Lake State Park	Tenn. Division of State Parks	310 acres; recreational facilities including boating, swimming, picnicking, playing field and camping
2	Shelby Lake	Kentucky Dept. of Fish and Wildlife Res.	80 acres
17	T.O. Fuller State Park	Tenn. Division of State Parks	1,000 acres; recreational facilities including swimming, picnicking, camping (group, tent-trailer), playing field and golf course
3	Turner Lake	Kentucky Dept. of Fish and Wildlife Res.	100 acres
15	Whiteville Lake	Tenn. Wildlife Resources Agency	18,000 acres



LOWER MISSISSIPPI REGION
COMPREHENSIVE STUDY

RECREATION

WRPA-3

FIGURE 11

W R P A 4

PHYSICAL DESCRIPTION

WRPA 4 consists of approximately 8.5 million acres of land and water in northwest Mississippi. This area corresponds to the Yazoo River Basin. Tributaries to the Yazoo include the Coldwater, Tallahatchie, Yocona, Yalobusha, Sunflower, and Steele Bayou.

Approximately one-half of this WRPA is located in the alluvial valley of the Mississippi River with the other half consisting of rolling bluff hills of the southern Mississippi valley silty uplands.

The climate is mild with an average annual temperature of 64° F. and precipitation of about 52 inches.

DEMOGRAPHIC AND SOCIOECONOMIC ANALYSIS

Population has decreased from 756,100 people in 1950 to 638,000 in 1970 with the most rapid rate of decline occurring between 1950 and 1959. Population projections indicate a continual decrease (3 percent annually) through 1980 followed by a projected upward trend in the growth rate between 1980 and 2000 (0.5 percent) and between 2000 and 2020 (0.8 percent). Urban population has increased from 20 percent of the total population in 1950 to 37 percent of the total in 1970, and is projected to increase to 56 percent of total population by 2020.

There has been a steady shift in employment from agriculture to manufacturing. For example, agricultural employment declined 45.6 percent between 1950 and 1960 whereas manufacturing employment increased 85.1 percent.

Per capita income increased 25.8 percent between 1950 and 1959 and 56.1 percent between 1959 and 1968. Projections indicate a continual average annual growth rate of approximately 3.5 percent for the period of 1968-2020.

All of the aforementioned indicators point to a continual increase in the demand for recreation opportunities with particular emphasis on urban day-use and rural overnight and vacation opportunities.

RESOURCE AVAILABILITY AND NEEDS

Water and Related Land Resource Profile

Thirteen counties, or one-half of the WRPA, are included in the area covered in Agriculture Economic Report Number 215 on "Land-Use Changes in the Southern Mississippi Alluvial Valley, 1950-1969" published by the Economic Research Service of the U.S. Department of Agriculture. This report outlines the changes in land use throughout the southern Mississippi alluvial valley. Throughout this area during the period 1950-1969, cropland increased by 38 percent and forest land decreased by 35 percent. Cropland now comprises about 50 percent of the total land use within WRPA 4. However, this percentage is much higher for the delta portion of WRPA 4. These land use changes are signaling the elimination of significant portions of those resources having very significant recreational value.

Areas of Unusual Opportunity

Sardis Lake, Grenada Lake, Enid Lake, Arkabutla Lake

These four reservoirs are part of the Corps of Engineers flood control program for the Yazoo River Basin. The reservoirs are all located along Interstate 55 and thus readily accessible to Memphis, Tenn. (WRPA 3), and other population centers. Portions of the reservoirs are presently developed for recreation with four State parks located along their shores. The Corps of Engineers is expected to continue the recreation development of these reservoirs thereby greatly increasing the recreation resource availability in this WRPA.

Supply and Needs Summary

The supply of and needed additions to recreation areas and facilities is presented in tables 14 and 15. The large amount of recreation land in table 14 is explained by large Federal Government areas in the WRPA; i.e., national forests and reservoirs.

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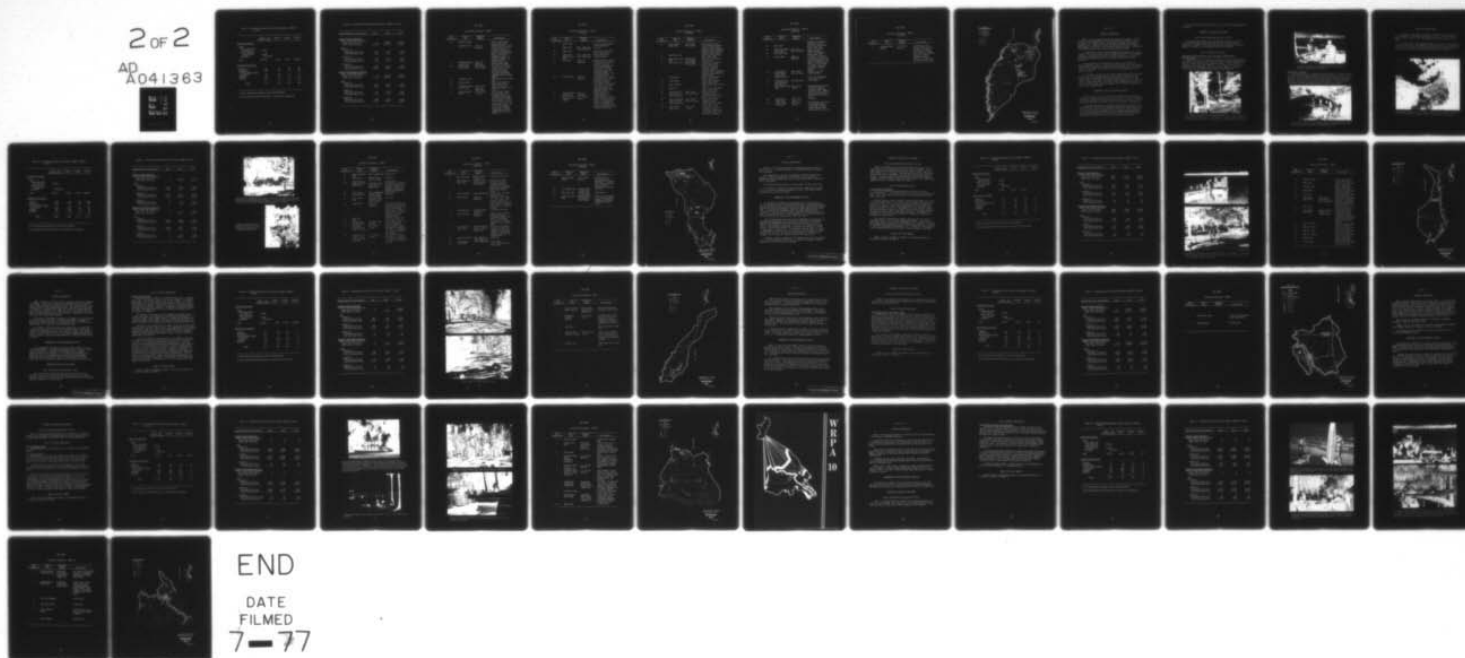
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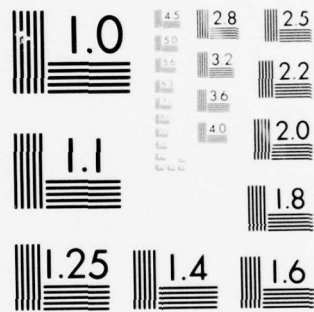
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Table 14 - Recreation Resource and Facility Supply in WRPA 4
(acres)

	Total: All Classifications	Category A	Category B	Category C
<u>Recreation Resource</u>				
Water				
Large lakes and reservoirs ^{1/}	49,000			
Small lakes and reservoirs ^{1/}	25,000			
Streams ^{2/}	1,100 miles			
Land	300,783	4,999	15,784	280,000
<u>Recreation Facilities</u>				
Camping	243	26	49	168
Picnicking	305	34	35	236
Playing outdoor games and sports	21	12	9	0
Swimming	112	54	35	23
Boating	176	35	20	121
TOTAL	857	161	148	548

^{1/} Not separated according to area classifications.

^{2/} Not protected from destruction or reserved for recreation.

Table 15 - Recreation Area and Facility Needs in WRPA 4 (acres)

Program Objective and Resource	1980	2000	2020
<u>National Income Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	0	18,000	58,000
Total (over 40 acres)	35,800	102,400	182,000
Land			
Category A			
Developed Facilities	946	1,381	2,082
Total Recreation Area	1,892	2,762	4,164
Category B			
Developed Facilities	842	1,232	1,859
Total Recreation Area	3,368	4,928	7,436
Category C			
Developed Facilities	3,180	4,646	7,008
Total Recreation Area	31,800	46,460	70,080
<u>Regional Development Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	0	28,000	75,000
Total (over 40 acres)	47,000	118,000	223,000
Land			
Category A			
Developed Facilities	1,052	1,617	2,449
Total Recreation Area	2,104	3,234	4,898
Category B			
Developed Facilities	937	1,443	2,187
Total Recreation Area	3,748	5,772	8,748
Category C			
Developed Facilities	3,538	5,441	8,244
Total Recreation Area	35,380	54,410	82,440

MAP INDEX

Recreation Resources - WRPA 4

Map Location No.	Name of Area	Managing Agency	Description
36	Albemarle Lake		749-ac. Mississippi River oxbow lake
1	Arkabutla Lake	Corps of Engineers	Completed 1943; 11,870 acre reservoir; recreational facilities including camping (80 units), picnicking (231 units), five boat launching ramps, 16 comfort stations and swimming beach
3	Arkabutla Public Access Area	Corps of Engineers	Public access area and launching ramp
20	Carver Point State Park	Mississippi Park System	750 acres; located on Grenada Lake; recreational facilities including swimming, boating, picnicking, camping (cabins, group camps)
41	Centennial Lake		Mississippi River oxbow lake
38	Chotard Lake		980-ac. Mississippi River oxbow lake
14	Coldwater Public Access Area	Miss. Game and Fish Commission	Public access and launching ramp, 1-acre site
37	Delta National Forest	U.S. Forest Service	59,000 acres; large tract bottom land hardwood, one of few in entire Mississippi River alluvial valley; one green tree reservoir, 1,700 acres, two recreational areas (8 units) for camping, picnicking, fishing, boating and hiking; some stands of virgin timber

MAP INDEX

Recreation Resources - WRPA 4 continued

Map Location No.	Name of Area	Managing Agency	Description
17	DeSoto Lake		1,525-ac. Mississippi River oxbow lake
7	Dumas Lake	Miss. Game and Fish Commission	32 acres
40	Eagle Lake		4,600-ac. Mississippi River oxbow lake
39	Eagle Lake Public Access Area	Miss. Game and Fish Commission	Public access and launching ramp
15	Enid Lake	Corps of Engineers	Completed 1952; 16,800- acre reservoir; recre- ational facilities including camping (205 units), picnicking (259 units), 11 boat launching ramps, 27 comfort stations, and a swimming beach
19	Grenada Lake	Corps of Engineers	Completed 1954; 34,310- acre reservoir; recre- ational facilities including camping (202 units), picnicking (317 units), 15 boat launching ramps, 25 comfort stations and a swimming beach
22	Grenada Public Access Area	Corps of Engineers	Public access and launching ramp
6	Holly Springs National Forest	U. S. Forest Service	Approximately 115,600 acres; primarily upland areas; 2 recreational areas for camping (66 units), picnicking (55 units), fishing, boating swimming and hiking

MAP INDEX

Recreation Resources - WRPA 4 continued

Map Location No.	Name of Area	Managing Agency	Description
33	Holmes County State Park	Mississippi Park System	Recreational facilities including camping (cabins, group camp, tent-trailer), swimming, boating, picnicking and nature trails; 463 acs.
13	Horseshoe Lake		1,200-ac. Mississippi River oxbow lake
23	Hugh White State Park	Mississippi Park System	740 acres, located on Grenada Lake
8	Kyle State Park	Mississippi Park System	740 acres; located on Sardis Lake; recreational facilities including camping (cabins, group camp, tent-trailer), swimming, boating, picnicking and nature trails
21	Lake Beulah		980-ac. Mississippi River oxbow lake
25	Lake Bolivar		662-ac. Mississippi River oxbow lake
27	Lake Ferguson		Mississippi River oxbow lake
29	Lake Lee		1,095-ac. Mississippi River oxbow lake
28	Lake Lee Public Access Area	Miss. Game and Fish Comm.	Public access and launching ramp
31	Lake Washington		2,938-ac. Mississippi River oxbow lake
32	Lake Washington Public Access	Miss. Game and Fish Comm.	Public access and launching ramp
24	Lake Whittington		4,000-ac. Mississippi River oxbow lake
30	Leroy Percy State Park	Miss. Park System	2,442 acres; recreational facilities including camping (cabins, group camp, tent-trailer), swimming

MAP INDEX

Recreation Resources - WRPA 4 continued

Map Location No.	Name of Area	Managing Agency	Description
11	Moon Lake		boating, picnicking and nature trails 1,800-ac. Mississippi River oxbow lake
12	Moon Lake Public Access Area	Miss. Game and Fish Comm.	Public access and launching ramp
18	Old River Lake		275-ac. Mississippi River oxbow lake
9	Sardis Lake	Corps of Engineers	31,000-ac. reservoir; recreational facilities including camping (353 units), picnicking (374 units), 14 boat ramps, 23 comfort stations, and three swimming beaches
10	Tallahatchie River Public Access Area	Miss. Game and Fish Comm.	Public access and launching ramp
2	Tunica Cut-Off		3,152-ac. Mississippi River oxbow lake
42	Vicksburg Natl. Military Park and Cemetery	National Park	1,740 acres
5	Wall Doxey State Park	Miss. Park System	Recreational facilities including camping (cabins, group camp, tent-trailer), swimming, boating, picnicking and nature trails; 855 acres
26	Winterville State Park	Miss. Park System	40 acres
16	Yocona Ridge State Park	Miss. Park System	Recreational facilities including boating, picnicking, camping (tent-trailer) and nature trails; 825 acs.

MAP INDEX

Recreation Resources - WRPA 4 continued

Map Location No.	Name of Area	Managing Agency	Description
6	Tombigbee Natl. Forest	U.S. Forest Service	20,300 acres; one recreational area for camping, picnicking (10 units), boating; this facility, formerly property of Holly Springs National Forest, is located in Yalobusha County, Miss.

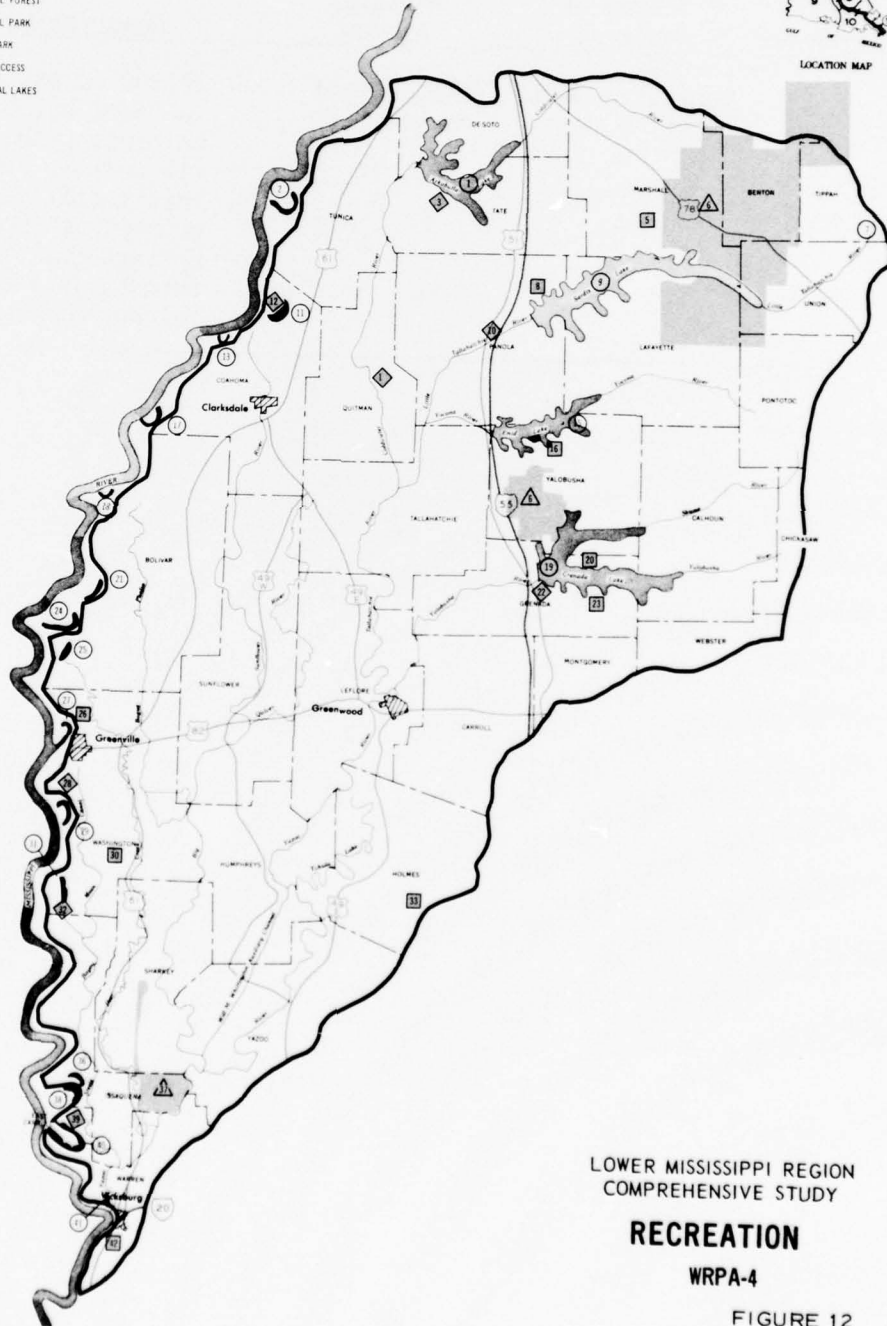


LEGEND

- HYDROLOGICAL BOUNDARY
- - - STATE BOUNDARY
- - - PARISH OR COUNTY BOUNDARY
- INTERSTATE HIGHWAY
- U. S. HIGHWAY
- △ NATIONAL FOREST
- NATIONAL PARK
- STATE PARK
- ◇ PUBLIC ACCESS
- INDIVIDUAL LAKES



LOCATION MAP



LOWER MISSISSIPPI REGION
COMPREHENSIVE STUDY

RECREATION

WRPA-4

FIGURE 12

W R P A 5

PHYSICAL DESCRIPTION

WRPA 5 is the largest planning area within the region. Its 13.1 million acres includes much of southern Arkansas and north central Louisiana. The Ouachita River is the major drainage system in the planning area. Tributary streams include the Little River, Bayou Bartholomew, Saline River, and the Little Missouri River. In addition, the Red River Basin crosses the southern end of the WRPA.

This WRPA has a more varied topography than anywhere else in the region. The terrain varies from the rugged hill areas of the Ouachitas (elevation ranging from 500 feet to 2,500 feet above m.s.l.) to the rolling hills and broad plains of southern Arkansas and central Louisiana.

A large portion of the rugged hill terrain lies within the Ouachita National Forest. The rolling hills of the West Gulf Coastal Plain comprise about three-fourths of this planning area. The eastern portion of the WRPA is characterized by the flat topography of the alluvial valley.

The climate is mild with an average annual temperature of around 65° F., with a low average annual of about 62° F. in the Ouachita Mountain area, and a high average annual of about 67.5° F. at the southern end of the WRPA. The normal annual precipitation is about 53 inches, ranging from about 60 inches at the southern end and about 56 inches in the northern Ouachita Mountain area to about 52 inches over most of the central areas.

DEMOGRAPHIC AND SOCIOECONOMIC ANALYSIS

WRPA 5 is one of the few WRPA's that experienced an increase in population between 1950 and 1970--from 777,362 to 822,000. Program A projections indicate expected increases of 4.0, 16.5, and 21.2 percent during the 1968-1980, 1980-2000, and 200-2020 periods, respectively.

Employment patterns have changed from primarily agricultural to manufacturing. Agricultural employment decreased from 56,648 in 1950 to 22,942 in 1960 and is projected to decline to 9,200 by 1980 with still further declines expected by 2020. Manufacturing employment increased from 47,023 in 1950 to 53,269 in 1960 and is projected to increase to 99,800 by the year 2020 (Program A projections).

All of the above indicators point to an increase in the demand for recreation.

RESOURCE AVAILABILITY AND NEEDS

Water and Related Land Resource Profile

The easternmost counties in this WRPA are within the alluvial valley and have experienced much land clearing as forest land is converted to cropland. This land clearing has reduced the recreation potential of much of the easternmost portion of the WRPA.

Areas of Unusual Opportunity

Lake Greeson, Lake Ouachita, Lake Catherine, Lake Hamilton, and DeGray Lake

These three Corps of Engineers reservoirs and two Arkansas Power and Light reservoirs are used extensively for recreation although they do not all have recreation as a project purpose. State parks are located on all except Lake Hamilton. It is likely that recreational development will continue at these reservoirs thereby increasing future vacation and weekend recreation use opportunities.



Lake Ouachita, located in the Ouachita Mountains, is one of the most scenic areas in the region. This family is enjoying the facilities at Lake Ouachita State Park located on the eastern shore of the lake.



Parents watching their children swim in Lake Greeson while visiting Daisy State Park.

Hot Springs, Arkansas

The famous springs are found along the outcrop of sandstone on the west slope of Hot Springs Mountain in an area of about 20 acres. The 47 springs service 17 bathhouses both in Hot Springs National Park and in the city. Hot Springs is located adjacent to Lake Hamilton and Lake Catherine and only a few miles from Lake Ouachita. For many years it has been one of the best known vacation areas in the region.



One of the springs at Hot Springs, Arkansas, attracting young and old alike to experience their rejuvenating powers.

Supply and Needs Summary

The supply of and needed additions to recreation areas and facilities for WRPA 5 are presented in tables 16 and 17. As was evident in WRPA 4, there is also a very large amount of Federal acreage in this WRPA.

The foothills of the Ouachita Mountains are located in the western portion of this WRPA. The mountains, along with the five aforementioned reservoirs also located in the western portion of this WRPA, make this one of the most attractive areas in the region for recreation.



The Ouachita River near Pencil Bluff, Arkansas. This lovely river narrows to a crystal-clear stream close to its mouth at Lake Ouachita.

Table 16 - Recreation Resource and Facility Supply in WRPA 5
(acres)

	Total: All Classifications	Category A	Category B	Category C
<u>Recreation Resource</u>				
Water				
Large lakes and reservoirs ^{1/}	175,000			
Small lakes and reservoirs ^{1/}	0			
Streams ^{2/}	1,931 miles			
Land	407,375	21,452	20,973	364,950
<u>Recreation Facilities</u>				
Camping	1,504	158	295	1,051
Picnicking	832	197	177	458
Playing outdoor games and sports	1,935	685	527	723
Swimming	319	153	72	94
Boating	212	107	56	49
	<hr/>	<hr/>	<hr/>	<hr/>
TOTAL	4,802	1,300	1,127	2,375

^{1/} Not separated according to area classifications.

^{2/} Not protected from destruction or reserved for recreation.

Table 17 - Recreation Area and Facility Needs in WRPA 5 (acres)

Program Objective and Resource	1980	2000	2020
<u>National Income Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	0	0	0
Total (over 40 acres)	0	61,900	199,000
Land			
Category A			
Developed Facilities	1,784	3,239	5,482
Total Recreation Area	3,568	6,478	10,964
Category B			
Developed Facilities	1,505	2,743	4,652
Total Recreation Area	6,020	10,972	18,608
Category C			
Developed Facilities	0	770	2,317
Total Recreation Area	0	7,700	23,170
<u>Regional Development Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	0	0	7,000
Total (over 40 acres)	0	98,000	260,000
Land			
Category A			
Developed Facilities	1,995	3,933	6,603
Total Recreation Area	3,990	7,866	13,206
Category B			
Developed Facilities	1,684	3,335	5,608
Total Recreation Area	6,736	13,340	22,432
Category C			
Developed Facilities	0	1,254	3,092
Total Recreation Area	0	12,540	30,920



Searching for something very special--diamonds--at Crater of Diamonds State Park near Murfreesboro, Arkansas. A truly unique experience--the only place in the United States where diamonds are found.



Enjoying a hike along the Longlead Vista Trail in the Kisatchie National Forest in northern Louisiana.

MAP INDEX

Recreation Resources - WRPA 5

Map Location No.	Name of Area	Managing Agency	Description
23	Bayou D'Arbonne Lake	Local Commission	15,241 acres
18	Calion Lake	Arkansas Game and Fish Comm.	500 acres
25	Catahoula Lake		26,880 acres
22	Chemin a Haut State Park	Louisiana State Park and Recr. Commission	306 acres; recreational facilities including camping (cabins, tent- trailer), picnicking, boating and swimming
20	Corney Lake	Local Commission	1,920 acres
13	Cox-Creek Lake	Arkansas Game and Fish Comm.	306 acres
11	Daisy State Park	Arkansas Parks, Recreation and Travel Comm.	370 acres
10	DeGray Lake	Corps of Engineers	13,400-ac. reservoir; recreational facilities including camping (285 units), picnicking (205 units), 18 boating ramps, three picnic shelters, and one swimming beach
27	Glasscock Lake		1,773-ac. Mississippi River oxbow lake
4	Hot Springs National Park	National Park Service	3,500 acres; eight hot spring bathhouses
19	Kisatchie National For. Caney Division	U.S. Forest Service	Two recreation areas developed for camping (54 units), picnicking (75 units), swimming, and boating
24	Kisatchie Natl. Forest, Cata- houla and Winn Division	U.S. Forest Service	Two recreation areas developed for camping (22 units), picnicking (17 units), boating and fishing

MAP INDEX

Recreation Resources - WRPA 5 continued

Map Location No.	Name of Area	Managing Agency	Description
9	Lake Catherine	Arkansas Power & Light Co.	3,000-acre reservoir
6	Lake Catherine State Park	Arkansas Parks, Recreation and Travel Comm.	2,048 acres; recre- ational facilities including camping (cabins, tent-trailer), picnicking, swimming, boating and nature trails
21	Lake Claiborne	Local Commission	6,400 acres; excellent water quality
12	Lake Greeson	Corps of Engineers	7,260-ac. reservoir; rec. facs. incl. camp- ing (245 units), pic- nicking (299 units), 18 boat ramps, 39 comfort stations and 4 swimming beaches.
7	Lake Hamilton	Arkansas Power & Light Co.	7,200-acre reservoir
3	Lake Ouachita	Corps of Engineers	40,060 acres; recrea- tional facilities including camping (301 units), picnicking (197 units), 19 boat ramps and one swimming beach
2	Lake Ouachita State Park	Arkansas Parks, Recr. & Travel Commission	370-acre recreational facilities including camping (cabins, tent- trailer), picnicking, swimming, boating and nature trails
14	Lake Pine Bluff	Ark. Game and Fish Commission	500 acres
1	Lake Winona	Local Commission	5,520 acres
26	Larto Lake		2,176 acres; Maj. Red River oxbow

MAP INDEX

Recreation Resources - WRPA 5 continued

Map Location No.	Name of Area	Managing Agency	Description
5	Ouachita Natl. Forest	U.S. Forest Service	392,300 acres; 13 recreation areas developed for camping (182 units), picnick- ing (70 units), swimming and boating
15	Tri-County Lake	Arkansas Game & Fish Comm.	280 acres
16	White Oak Lake	Arkansas Game & Fish Comm.	2,600 acres
17	White Oak State Park	Arkansas Parks Recreation & Travel Comm.	272-acre recreational facilities including camping, picnicking, boating and nature trails

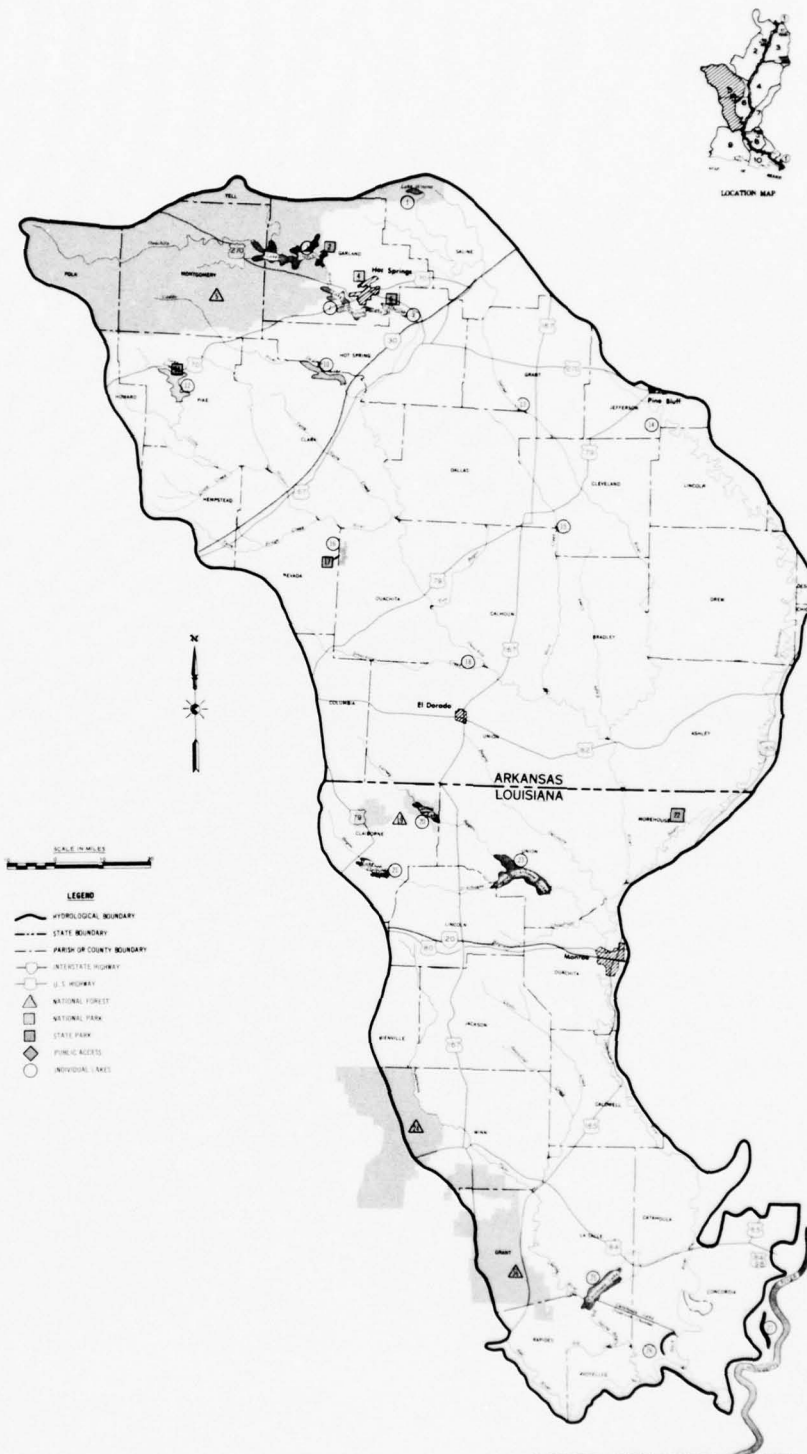


FIGURE 13

W R P A 6

PHYSICAL DESCRIPTION

WRPA 6 is one of the smallest of the planning areas at about 3.5 million acres. It includes portions of southeast Arkansas and north-east Louisiana.

The topography of the area is generally flat with about three-fourths of the area consisting of Mississippi valley alluvium. Elevations range from about 170 feet in the northern part to about 60 feet in the south.

The Boeuf and Tensas Rivers are the primary streams of the area.

The climate is mild with an average annual temperature of around 65° F. with little variance throughout the area. The normal annual precipitation is about 52 inches.

DEMOGRAPHIC AND SOCIOECONOMIC ANALYSIS

The population of WRPA 6 has decreased from 215,000 persons in 1950 to 188,000 in 1970--a 12.6 percent decrease. Program A population projections indicate population will remain relatively constant through the year 2000 and then increase slightly to about 193,000 by the year 2020. An urban-rural breakdown shows that urban population has increased 2.7 percent per year--from 23 percent of total population in 1950 to 39 percent in 1970. Urban population is projected to increase to 53 percent of total population by the year 2020.

The increased urbanization has been accompanied by an increase in manufacturing employment and a decrease in agricultural employment. Agricultural employment decreased from 34,214 in 1950 to 17,327 in 1960 and is projected to decrease to 5,600 by 2020 (Program A projections). Manufacturing employment is projected to increase to 11,400 in 2020 up from 5,970 in 1950. The decline of agriculture as a source of employment is accounted for in the decrease in the number of farms between 1949 and 1970 (73 percent) and the dramatic increase in the average size of farms (298 percent) during that same period.

Although recreation demand in this planning area will not increase as a result of population increases, the above socioeconomic adjustments will affect an increase in demand.

RESOURCE AVAILABILITY AND NEEDS

Water and Related Land Resource Profile

Most of this WRPA is part of the alluvial valley and as part of this delta area has experienced extensive land use changes. As in other areas of the alluvial valley, forest land is being cleared for agricultural use. At present, cropland alone constitutes 58 percent of the total land in the WRPA, with pastureland occupying another 13 percent. The land resource base upon which recreation development depends could be eliminated within the time frame of this study unless immediate action is taken to halt this trend.

Areas of Unusual Opportunity

Poverty Point, Louisiana

This site is the oldest known habitat of man in the Lower Mississippi Valley. It contains the vestiges of an ancient Indian city that, by the most conservative estimate, is considered to date back some 2,600 years.

Poverty Point is located in West Carroll Parish between the towns of Epps and Bayou Macon. It contains several mounds, the largest of which is as tall as a seven-story building, the second highest such structure in America. This central mound towers 70 feet high with a base of 640 feet by 710 feet. Although this is not quite as high as the Great Pyramid of Egypt, the entire Poverty Point complex contains 35 times the cubic volume of the Egyptian wonder. The mounds are arranged in a perfect octagonal design in a display of expertise far advanced for that period.

The State of Louisiana has recently purchased the site and is planning to make it into a State commemorative area. Indications are that rather extensive recreation developments will be made in the area to complement the substantial visitor use resulting from the attraction of this very significant archeological site. Therefore, this could be a very important addition to existing recreation supply in the WRPA.

• Supply and Needs Summary

Tables 18 and 19 outline the supply of and needed additions to recreation resources for WRPA 6.

Table 18 - Recreation Area and Facility Supply in WRPA 6
(acres)

	Total: All Classifications	Category A	Category B	Category C
<u>Recreation Resource</u>				
Water				
Large lakes and reservoirs ^{1/}	10,000			
Small lakes and reservoirs ^{1/}	22,000			
Streams ^{2/}	536 miles			
Land	23,545	6,576	16,969	0
<u>Recreation Facilities</u>				
Camping	37	8	29	0
Picnicking	83	43	40	0
Playing outdoor games and sports	183	122	61	0
Swimming	71	42	29	0
Boating	37	27	10	0
TOTAL	411	242	169	0

^{1/} Not separated according to area classifications.

^{2/} Not protected from destruction or reserved for recreation.

Table 19 - Recreation Area and Facility Needs in WRPA 6 (acres)

Program Objective and Resource	1980	2000	2020
<u>National Income Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	1,600	7,100	15,000
Total (over 40 acres)	1,600	10,500	28,000
Land			
Category A			
Developed Facilities	632	862	1,224
Total Recreation Area	1,264	1,724	2,448
Category B			
Developed Facilities	584	782	1,094
Total Recreation Area	2,336	3,128	4,376
Category C			
Developed Facilities	15	17	22
Total Recreation Area	150	170	220
<u>Regional Development Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	4,000	8,000	18,000
Total (over 40 acres)	4,000	13,000	35,000
Land			
Category A			
Developed Facilities	696	936	1,408
Total Recreation Area	1,392	1,872	2,816
Category B			
Developed Facilities	637	846	1,252
Total Recreation Area	2,548	3,384	5,008
Category C			
Developed Facilities	16	19	25
Total Recreation Area	160	190	250

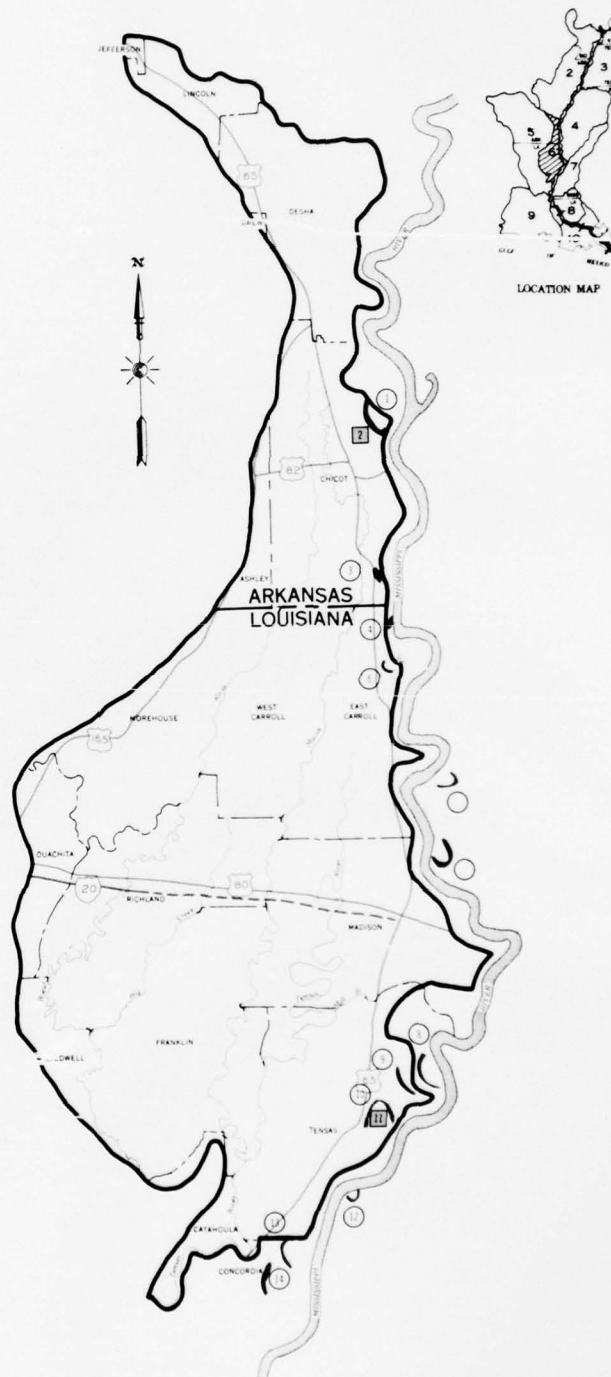


Boating and camping at Lake Chicot State Park. Lake Chicot is an oxbow lake formed by a shifting in the Mississippi River's course and is the largest natural lake in Arkansas.

MAP INDEX

Recreation Resources - WRPA 6

Map Location No.	Name of Area	Managing Agency	Description
6	Albemarle Lake		749-ac. Mississippi River oxbow lake
7	Eagle Lake		4,275-ac. Mississippi River oxbow lake
4	Gassoway Lake		800-ac. Mississippi River oxbow lake
3	Grand Lake		1,400-ac. Mississippi River oxbow lake
10	Lake Bruin		2,342-ac. Mississippi River oxbow lake
11	Lake Bruin State Park	Louisiana State Parks & Recr. Commission	45 acres; recreational facilities including camping, picnicking, boating, swimming and nature trails
1	Lake Chicot		5,300-ac. Mississippi River oxbow lake
2	Lake Chicot State Park	Arkansas State Parks, Recr. & Travel Comm.	6,400 acres; recrea- tional facilities including camping (cabins, tent-trailer), picnicking, swimming, boating and nature trails
14	Lake Concordia		1,050-ac. Mississippi River oxbow lake
5	Lake Providence		1,230-ac. Mississippi River oxbow lake
13	Lake St. John		2,118-ac. Mississippi River oxbow lake
9	Lake St. Joseph		1,197-ac. Mississippi River oxbow lake
12	Rodney Lake		666-ac. Mississippi River oxbow lake
8	Yucatan Lake		1,997-ac. Mississippi River oxbow lake



LOWER MISSISSIPPI REGION
COMPREHENSIVE STUDY

RECREATION

WRPA-6

FIGURE 14

W R P A 7

PHYSICAL DESCRIPTION

WRPA 7 contains 4.2 million acres located in central and southwest Mississippi. The terrain of the part of the WRPA in central Mississippi consists primarily of upland or hill areas with some prairie and alluvial areas in the southeastern portion. The terrain of that part of the WRPA in southwest Mississippi also consists of upland and hill areas and some alluvial areas. The loess hills along the Mississippi River in eastern portions of the WRPA provide a spectacular view of the river and the alluvial plain beyond.

The portion of the WRPA in central Mississippi is in the drainage basin of the Big Black River. The part of the WRPA in southwest Mississippi contains portions of the Homochitto River, Buffalo River, Bayou Pierre, St. Catherine Creek, and Coles Creek.

The climate is mild with an average temperature of around 66° F., ranging from about 65° F. to 67.5° F., North to South. The average length of the growing season is about 230 days, ranging from about 220 days to 240 days, North to South. The normal annual precipitation is about 55 inches, ranging from approximately 52 to near 60 inches North to South.

DEMOGRAPHIC AND SOCIOECONOMIC ANALYSIS

The socioeconomic situation is much the same in WRPA 7 as it is in the other WRPA's. Although rural population has decreased substantially resulting in a decrease in total population, the urban population sector has increased. As is true in other WRPA's, this points the way to an increased need for recreation development, especially day use facilities close to urban centers and a more attractive rural environment conducive to overnight and vacation use.

RESOURCE AVAILABILITY AND NEEDS

Water and Related Land Resource Profile

This area has not experienced the intensive land use change pressures as have many of the other WRPA's; therefore, land resource analysis studies and information, other than that contained in the Land Resources Appendix, is not available.

Areas of Unusual Opportunity

Natchez Trace Parkway

The Natchez Trace Parkway will connect Natchez, Miss., and Nashville, Tenn. The parkway crosses the section of WRPA 7 in southwest Mississippi and runs the length of the section of WRPA 7 in central Mississippi. The "Trace" evolved from an Indian trail into a post road and pioneer highway. From 1800 to 1820, it was the most heavily traveled road in the old southwest. The parkway at present contains 306 miles of driveable road; this will increase to 450 when and if the parkway is completed.

The parkway, at present, has many adjacent recreation areas. In future time frames, the completion of the parkway and additions to recreation supply along it would create a substantial increase in the recreation supply of this WRPA. The route of the parkway passes in close proximity to many State parks and many important historic areas.

The Natchez Trace Parkway also includes in its land corridor the potential for a national scenic trail. This opportunity was recognized in the 1930's when as a result of a National Park Service study, the suggestion was made that the historic route of the trace should be preserved and developed at some future time as a pathway for hikers, equestrians, and cyclists.

A trail developed in close proximity to the parkway would offer the ardent hiker, horseback rider, and cyclist, either in separate sections or in compatible combination, opportunity to follow the Natchez Trace and enjoy many recreation opportunities unavailable to motorists. The recreationist could hike or ride on representative sections of the old trace and see what a frontier road looked like. At short intervals, he would find other landmarks--a building, an abandoned mine or a stream crossing--all associated with the people who lived on or traveled over the historic thoroughfare. Such a trail, if developed, could further enhance public enjoyment of the historical and aesthetic qualities of the Natchez Trace Parkway and greatly increase the recreational use of the trace within the time frame of this study.

Supply and Needs Summary

Tables 20 and 21 outline the supply of and needed additions to recreation resources for WRPA 7.

Table 20 - Recreation Resource and Facility Supply in WRPA 7
(acres)

	Total: All Classifications	Category A	Category B	Category C
<u>Recreation Resource</u>				
Water				
Large lakes and reservoirs ^{1/}	23,000			
Small lakes and reservoirs ^{1/}	15,000			
Streams ^{2/}	450 miles			
Land	252,910	3,347	39,483	210,080
<u>Recreation Facilities</u>				
Camping	84	30	54	0
Picnicking	152	75	72	5
Playing outdoor games and sports	54	31	23	0
Swimming	24	14	10	0
Boating	58	37	21	0
	<hr/>	<hr/>	<hr/>	<hr/>
TOTAL	372	187	180	5

^{1/} Not separated according to area classifications.

^{2/} Not protected from destruction or reserved for recreation.

Table 21 - Recreation Area and Facility Needs in WRPA 7 (acres)

Program Objective and Resource	1980	2000	2020
<u>National Income Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	0	0	5,000
Total (over 40 acres)	0	5,400	29,000
Land			
Category A			
Developed Facilities	603	943	1,463
Total Recreation Area	1,206	1,886	2,926
Category B			
Developed Facilities	500	792	1,238
Total Recreation Area	2,000	3,168	4,952
Category C			
Developed Facilities	9	13	21
Total Recreation Area	90	130	210
<u>Regional Development Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	0	0	11,000
Total (over 40 acres)	0	13,000	42,000
Land			
Category A			
Developed Facilities	691	1,147	1,787
Total Recreation Area	1,382	2,294	3,574
Category B			
Developed Facilities	578	968	1,520
Total Recreation Area	2,312	3,872	6,080
Category C			
Developed Facilities	9	15	25
Total Recreation Area	90	150	250



Views along the scenic Natchez Trace.

MAP INDEX

Recreation Resources - WRPA 7

Map Location No.	Name of Area	Managing Agency	Description
1	Big Black River Public Access	Mississippi Game and Fish Commission	Boat launching ramp and public access area
4	Homochitto National Forest	U.S. Forest Service	189,000 acres; three recreation areas for camping (23 units), picnicking (22 units) swimming and boating
5	Lake Mary		Mississippi River oxbow lake
2	Natchez Trace National Parkway	National Park Service	8,000 acres; camping and picnicking facili- ties are available at various areas along the Parkway
3	Rodney Lake		Mississippi River oxbow lake



FIGURE 15

PHYSICAL DESCRIPTION

WRPA 8 contains about 3.6 million acres of land and water. Most of it is located in the northern portion of Louisiana, east of the Mississippi River. A sizable portion of the WRPA is also located on the west side of the Mississippi River.

The Tangipahoa, Amite, Tickfaw, and Notalbany Rivers are the principal rivers in the eastern portion of the WRPA. Bayou Grosse Tete is the principal drainage area for that portion of the WRPA on the west side of the Mississippi River.

The terrain of the area west of the Mississippi River consists of the alluvial lowlands. That portion of the WRPA east of the Mississippi River contains some rolling hill lands in addition to the alluvial areas. The elevation in the hill area ranges from about 50 to 500 feet.

This area, being in subtropical latitudes, has a mild climate due to the warm waters of the Gulf of Mexico and the prevailing southerly winds. The average temperature ranges from a high of 95° F. to a low of 40° F. Average annual rainfall is approximately 60 inches.

DEMOGRAPHIC AND SOCIOECONOMIC ANALYSIS

WRPA 8 is one of the four WRPA's that has shown an increase in population from 1950 to 1968. Population increased from 373,544 to 539,660 during that period and is projected to increase to 1,003,000 by 2020 (Program A). Urban areas have experienced an average growth rate of 1.1 percent whereas rural areas have experienced an annual decrease of 1.2 percent.

The consolidation of farms into larger units and increased mechanization resulted in a decrease of 58 percent in agricultural employment from 1950 to 1960. Total employment increased during that period; therefore, the increase in manufacturing and other forms of employment had to more than offset the decrease in agricultural employment. These trends are projected to continue into the future resulting in increases in recreation demand.

RESOURCE AVAILABILITY AND NEEDS

Water and Related Land Resource Profile

Refer to the Land Resources Appendix for a discussion of land use in this WRPA. This area has not experienced the land use changes that many of the other WRPA's have.

Areas of Unusual Opportunity

Baton Rouge Levees and Batture Lands

Baton Rouge is the third largest city in the Lower Mississippi Region. Fifty-two percent of the population in WRPA 8 resides in the Baton Rouge metropolitan area; and as is the case with all urban areas, the pressures for outdoor recreation experiences are extreme. The Mississippi River levees and the land between the levees and the river receive substantial recreation use at present even though there is no public access to these areas. Barbed wire fences separate the levee from that portion of the Great River Road running alongside the levee. Therefore, recreational use of the levee is not only inconvenient, but illegal and dangerous.

The levees are the dominant topographic feature in this area, providing an excellent vantage point from which to view the huge ocean-going ships on the Mississippi (Baton Rouge is the furthestmost inland port for deep draft vessels) and the city of Baton Rouge. Any increase in public access to this area would create a tremendous increase in recreation opportunities for this WRPA.

Supply and Needs Summary

Tables 22 and 23 outline the supply of and needed additions to recreation resources for WRPA 8.

Table 22 - Recreation Resource and Facility Supply in WRPA 8
(acres)

	Total: All Classifications	Category A	Category B	Category C
<u>Recreation Resource</u>				
Water				
Large lakes and reservoirs ^{1/}	51,000			
Small lakes and reservoirs ^{1/}	22,000			
Streams ^{2/}	400 miles			
Land	10,327	2,849	7,468	10
<u>Recreation Facilities</u>				
Camping	65	28	37	0
Picnicking	122	33	89	0
Playing outdoor games and sports	353	111	242	0
Swimming	92	31	61	0
Boating	41	34	7	0
	<hr/>	<hr/>	<hr/>	<hr/>
TOTAL	673	237	436	0

^{1/} Not separated according to area classifications.

^{2/} Not protected from destruction or reserved for recreation.

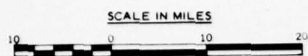
Table 23 - Recreation Area and Facility Needs in WRPA 8 (acres)

Program Objective and Resource	1980	2000	2020
<u>National Income Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	0	23,700	79,000
Total (over 40 acres)	33,900	112,600	237,000
Land			
Category A			
Developed Facilities	2,782	4,587	7,388
Total Recreation Area	5,564	9,174	14,776
Category B			
Developed Facilities	2,163	3,720	6,131
Total Recreation Area	8,652	14,880	24,524
Category C			
Developed Facilities	52	77	115
Total Recreation Area	520	770	1,150
<u>Regional Development Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	0	34,000	99,000
Total (over 40 acres)	43,000	104,000	287,000
Land			
Category A			
Developed Facilities	3,032	5,255	8,621
Total Recreation Area	6,064	10,510	17,242
Category B			
Developed Facilities	2,382	4,294	7,193
Total Recreation Area	9,528	17,176	28,772
Category C			
Developed Facilities	55	87	134
Total Recreation Area	550	870	1,340

MAP INDEX

Recreation Resources - WRPA 8

Map Location No.	Name of Area	Managing Agency	Description
1	False River Lake		2,912-ac. Mississippi River oxbow lake
2	Lake Maurepas		58,240 acres



LEGEND

- HYDROLOGICAL BOUNDARY
- STATE BOUNDARY
- PARISH OR COUNTY BOUNDARY
- INTERSTATE HIGHWAY
- U. S. HIGHWAY
- NATIONAL FOREST
- NATIONAL PARK
- STATE PARK
- PUBLIC ACCESS
- INDIVIDUAL LAKES



LOCATION MAP



LOWER MISSISSIPPI REGION
COMPREHENSIVE STUDY

RECREATION

WRPA-8

FIGURE 16

PHYSICAL DESCRIPTION

WRPA 9 contains approximately 8.5 million acres. It is located in southwest Louisiana. The terrain varies from hills and prairies in the northern portion of the WRPA to alluvial lowlands and coastal marshes in the southern portion of the WRPA. Ground elevation varies from 250 feet m.s.l. in portions of the hill lands to sea level on the southern coast. The coastal marshes along the southern portion of the WRPA extend inland for an average of 20 to 30 miles. Along the seaward side of these marshes are sand and shell ridges, called "chenieres," which parallel the coast sometimes attaining a height of 10 to 11 feet.

Major rivers in this WRPA include the Atchafalaya, Mermentau, Calcasieu, Vermilion, and Bayou Teche.

Summers are hot and winters are mild with average monthly temperatures ranging from 82° F. in August to 54° F. in January.

The normal annual precipitation is about 60 inches with little variation throughout the area.

DEMOGRAPHIC AND SOCIOECONOMIC ANALYSIS

The population of WRPA 9 has increased 61 percent since 1940. This growth has been largely centered in the Lake Charles and Lafayette SMSA's with urban areas in general increasing in population an average of 1.4 percent per year while rural areas decreased a corresponding amount.

Although farming activities occupied 42.5 percent of the total land area in 1970, up from 36 percent in 1949, mechanization has led to a decrease in agriculture as a source of employment. However, manufacturing and other employment sectors have experienced a substantial enough increase in employment to cause total employment to increase. As population increases, especially in urban areas, the demand for recreation will also increase.

RESOURCE AVAILABILITY AND NEEDS

Water and Related Land Resource Profile

Refer to the Land Resources Appendix for an analysis of land use in this area. Pressures for changing land use has not been as intense in these southern WRPA's as they have been in the northern WRPA's.

Areas of Unusual Opportunity

The Atchafalaya Basin

A discussion of this significant area is included in the regional summary.

The Coastal Beaches

The beach area along Louisiana Highway 82 between Peveto Beach and Holly Beach, and the beach area along Grand Isle, La., in WRPA 10, are the only sections of gulf coast beach in the Lower Mississippi Region that are readily accessible and of value to recreationists.

Although there are no recreation developments in the 10-mile stretch of beach along Highway 82 nor any designated parking areas to facilitate use of the beach, it still receives a substantial amount of use.

Portions of Highway 82 and the beach along it have been breached at different times by gulf coast hurricanes and are in danger of eroding away. The Louisiana Department of Highways is trying to save Highway 82 and the beach from erosion and they have been successful in reducing damages associated with storms of limited severity. Should this beach area be protected and developed for recreation, it would have a very significant impact in increasing recreation opportunities in this WRPA. A scenic drive along its coast is recommended in the State of Louisiana publication entitled "Goals for Louisiana."

Supply and Needs Summary

Tables 24 and 25 outline the supply of and needed additions to recreation resources for WRPA 9.

Table 24 - Recreation Resource and Facility Supply in WRPA 9
(acres)

	Total: All Classifications	Category A	Category B	Category C
<u>Recreation Resource</u>				
Water				
Large lakes and reservoirs ^{1/}	316,000			
Small lakes and reservoirs ^{1/}	84,000			
Streams ^{2/}	928 miles			
Land	23,296	2,616	12,680	8,000
<u>Recreation Facilities</u>				
Camping	39	18	21	0
Picnicking	292	151	126	15
Playing outdoor games and sports	370	230	140	0
Swimming	324	183	141	0
Boating	108	56	50	2
	<hr/>	<hr/>	<hr/>	<hr/>
TOTAL	1,133	638	478	17

^{1/} Not separated according to area classifications.

^{2/} Not protected from destruction or reserved for recreation.

Table 25 - Recreation Area and Facility Needs in WRPA 9 (acres)

Program Objective and Resource	1980	2000	2020
<u>National Income Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	0	0	0
Total (over 40 acres)	0	0	0
Land			
Category A			
Developed Facilities	3,119	4,664	6,913
Total Recreation Area	6,238	9,328	13,826
Category B			
Developed Facilities	2,759	4,089	6,026
Total Recreation Area	11,036	16,356	24,104
Category C			
Developed Facilities	47	68	97
Total Recreation Area	470	680	970
<u>Regional Development Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	0	0	0
Total (over 40 acres)	0	0	0
Land			
Category A			
Developed Facilities	3,403	5,465	8,055
Total Recreation Area	6,806	10,930	16,110
Category B			
Developed Facilities	3,003	4,778	7,009
Total Recreation Area	12,012	19,112	28,036
Category C			
Developed Recreation Area	51	81	115
Total Recreation Area	510	810	1,150



The Acadian Museum at Evangeline State Park--a fascinating place, reputed to have been occupied by Louis Arceneaux, portrayed as Gabriel in Longfellow's poem "Evangeline." The museum allows one to experience vicariously the trials and tribulations of the Acadians in their search for peace and freedom in this new land after being driven from their native Nova Scotia.



Lake Charles Beach, Lake Charles, Louisiana. This is the largest city in WRPA 9.



Camping at Chicot State Park, near Ville Platte, Louisiana.



Boating on the Houston River at Sam Houston State Park, near Lake Charles, Louisiana.

MAP INDEX

Recreation Resources - WRPA 9

Map Location No.	Name of Area	Managing Agency	Description
8	Calcasieu Lake		42,880 acres coastal lake
5	Chicot State Park	Louisiana State Parks and Recr. Commission	6,400 acres; recreational facilities including camping (cabins, tent-trailer), picnicking and boating
9	Grand Lake		40,960 acres coastal lake
2	Kisatchie Natl. Forest, Evangeline Division	U.S. Forest Service	Approx. 30,000 acres; two recreation areas for camping (41 units), picnicking (27 units), boating and swimming
1	Kisatchie Natl. Forest, Kisatchie Div.	U.S. Forest Service	Approximately 30,000 acres
4	Kisatchie Natl. Forest, Vernon Division	U.S. Forest Service	Approximately 25,000 acres; one recreation area for camping (eight units), picnicking (eight units) and boating
7	Longfellow-Evangeline State Park	Louisiana State Parks & Recreation Commission	157 acres; recreational facilities including camping, picnicking, boating, swimming, and an Acadian museum
3	Old River Lake		4,160-ac. Mississippi River oxbow lake
6	Sam Houston State Park	Louisiana State Parks & Recreation Commission	1,068 acres; recreational facilities including camping, picnicking, boating & nature trails
10	White Lake		51,840 acres



**W
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10**

W R P A 10

PHYSICAL DESCRIPTION

WRPA 10 contains approximately 4.9 million acres of land and water. It is located in southeast Louisiana.

The terrain varies from rolling hill land in the northeast portion of the WRPA with elevations of up to 300 feet to the vast areas of marshes in the southern part of the WRPA with elevations close to sea level.

Land values for urban and built-up land are especially high in this WRPA because soil conditions in most of this WRPA are too unstable to support structures of any type without rather extensive and costly modifications.

Thousands of lakes and lagoons dot this WRPA. The principal rivers include Bayou Lafourche, Lacombe Bayou, Bayou Terre aux Boeufs, and the Tchefuncte River.

WRPA 10 has a warm, humid, subtropical climate with mild winters and hot summers. Average monthly temperatures range from 55° F. in January to 83° F. in July. Normal average annual precipitation amounts to about 60 inches.

DEMOGRAPHIC AND SOCIOECONOMIC ANALYSIS

The population of WRPA 10 has increased 81 percent since 1940. The urban areas have been the recipient of this increased population with New Orleans alone now claiming 80 percent of the total population.

RESOURCE AVAILABILITY AND NEEDS

Water and Related Land Resource Profile

Refer to the Land Resources Appendix for a detailed analysis of land use in this WRPA. This, again, is an area where land use changes have not been as rapid and as far-reaching as in other WRPA's.

Areas of Unusual Opportunity

New Orleans Riverfront and Lakefront

The levees along the Mississippi River in many sections of New Orleans offer an excellent vantage point from which to view the river and the many oceangoing vessels passing by. A few park benches have been placed on the levee section adjacent to the Vieux Carre (French Quarter) but much more could be done.

The report "Recreation Survey and Plan of the New Orleans Metropolitan Area," June 1969, recognizes the value of the levees as recreation areas. The plan proposes a system of hiking and horseback trails along the levees. In any event, these levees are the dominant natural relief feature of the area and offer very significant recreation potential.

The Lake Pontchartrain lakefront is another area that is mentioned in the "Recreation Survey and Plan of the New Orleans Metropolitan Area" as having a much greater potential for providing recreation opportunity than is currently being provided. Improved water quality, expanded boating facilities, etc., are mentioned in the above and in other recreation plans as improvements that should be provided.

In the hot, humid climate of south Louisiana, any improvement in water oriented recreation is a significant one.

Supply and Needs Summary

Tables 26 and 27 outline the supply of and needed additions to recreation resources for WRPA 10.

Table 26 - Recreation Resource and Facility Supply in WRPA 10
(acres)

	Total: All Classifications	Category A	Category B	Category C
<u>Recreation Resource</u>				
Water				
Large lakes and reservoirs ^{1/}	432,000			
Small lakes and reservoirs ^{1/}	507,000			
Streams ^{2/}	329 miles			
Land	11,530	3,384	8,016	130
<u>Recreation Facilities</u>				
Camping	6	0	6	0
Picnicking	81	49	32	0
Playing outdoor games and sports	790	500	290	0
Swimming	174	102	72	0
Boating	40	22	18	0
	<hr/>	<hr/>	<hr/>	<hr/>
TOTAL	1,091	673	418	0

^{1/} Not separated according to area classifications.

^{2/} Not protected from destruction or reserved for recreation.

Table 27 - Recreation Area and Facility Needs in WRPA 10 (acres)

Program Objective and Resource	1980	2000	2020
<u>National Income Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	0	0	0
Total (over 40 acres)	0	0	0
Land			
Category A			
Developed Facilities	6,545	10,822	17,455
Total Recreation Area	13,090	21,644	34,910
Category B			
Developed Facilities	5,799	9,485	15,193
Total Recreation Area	23,196	37,940	60,772
Category C			
Developed Facilities	122	184	274
Total Recreation Area	1,220	1,840	2,740
<u>Regional Development Objective</u>			
Water (Lakes and Reservoirs)			
Large (over 500 acres)	0	0	0
Total (over 40 acres)	0	0	0
Land			
Category A			
Developed Facilities	7,151	12,360	20,387
Total Recreation Area	14,302	24,720	40,774
Category B			
Developed Facilities	6,324	10,807	17,721
Total Recreation Area	25,296	43,228	70,884
Category C			
Developed Facilities	132	208	319
Total Recreation Area	1,320	2,080	3,190



Grand Isle, on Louisiana's Gulf coast, once the stomping ground of the notorious pirate Jean Lafitte is now one of Louisiana's favorite recreation areas.



Camping at Fairview Riverside State Park. The beautiful Tchefuncte River runs through the park and adds immeasurably to the recreation experience.



The abundant water resources of this WRPA provide for a wide variety of recreation activities. The only thing these boating experiences have in common is water--one being on the Mississippi River at Donaldsonville, Louisiana, and the other a lazy bayou in south Louisiana.

MAP INDEX

Recreation Resources - WRPA 10

Map Location No.	Name of Area	Managing Agency	Description
1	Fairview River- side State Park	Louisiana State Parks & Recreation Commission	100 acres; recreational facilities including camping, picnicking and boating
2	Fountainbleau State Park	Louisiana State Parks & Recreation	2,605 acres; recrea- tional facilities including camping (group cabins, tent- trailer), picnicking, swimming, and nature trails
4	Lac Des Allemands		14,700 acres
5	Lake Cataouatche		9,280 acres
3	Lake Pontchar- train		398,000 acres; easy access to New Orleans residents
6	Lake Salvador		44,800 acres

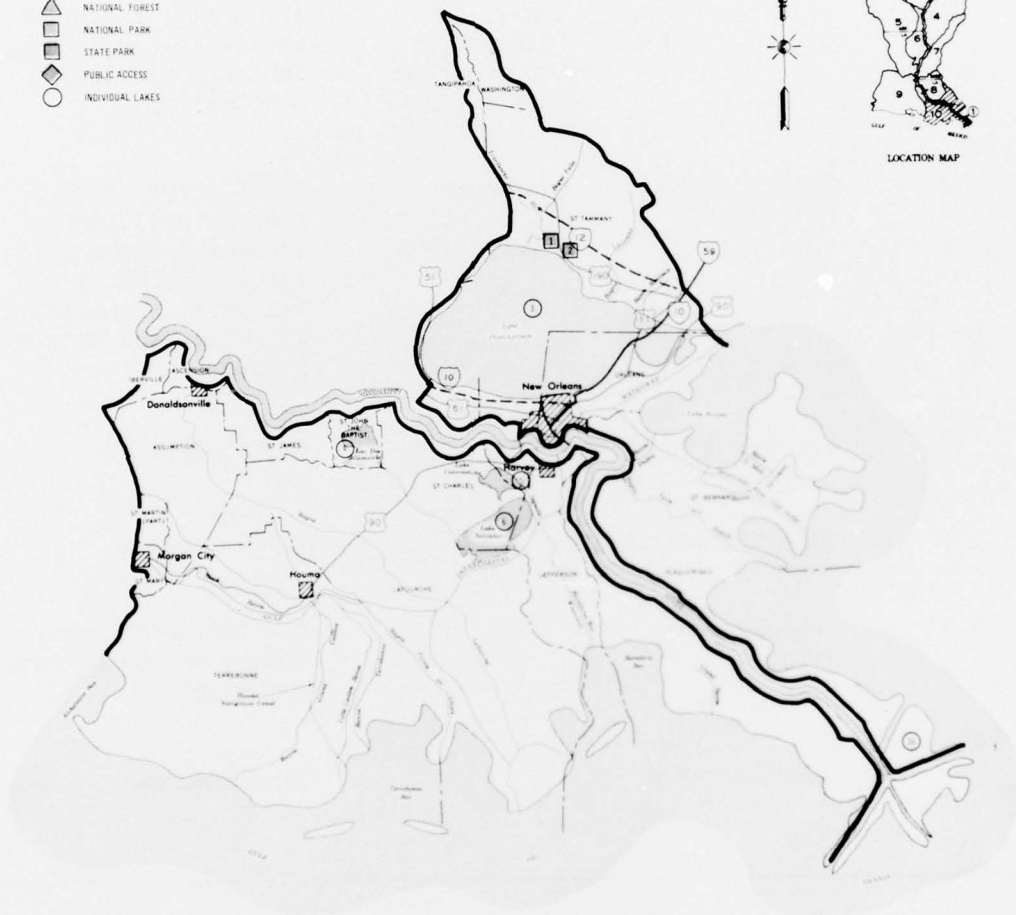


LEGEND

- HYDROLOGICAL BOUNDARY
- - - STATE BOUNDARY
- - - PARISH OR COUNTY BOUNDARY
- INTERSTATE HIGHWAY
- U. S. HIGHWAY
- △ NATIONAL FOREST
- NATIONAL PARK
- ▣ STATE PARK
- ◻ PUBLIC ACCESS
- INDIVIDUAL LAKES



LOCATION MAP



LOWER MISSISSIPPI REGION
COMPREHENSIVE STUDY

RECREATION

WRPA-10

FIGURE 18